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ABSTRACT

The ten studies contained in this volume mark the third publication by the National Middle School Association of research on early adolescent education. The previous issues are ED 214 273 and ED 214 283. The papers in the 1981 edition represent a broad range of middle school research topics and methodologies. A number of studies in this volume deal with school climate and organization. Others examine teachers' involvement in decision-making and their job satisfaction. A third set focuses on student attitudes toward science and student response to the loss of a parent. One study looks at parental behavior. Two studies are related to the teaching of particular subject areas, language arts and reading. Finally, an ethnographic study takes a holistic look at middle school classrooms. A bibliography accompanies each study. (Author/MLF)

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MIDDLE SCHOOL RESEARCH

SELECTED STUDIES

1981

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EA 014 551

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MIDDLE SCHOOL RESEARCH STUDIES

1981

Edited by
Thomas Owen Erb
The University of Kansas

Research Committee
National Middle School Association

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The Ohio State University

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Buffalo

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Thomas Erb, Chair
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PREFACE

The publication of the 1981 edition of Middle School Research Studies marks the Fifth Anniversary of the National Middle School Research Symposium. Prior to 1977 researchers dealing with issues related to the education of early adolescents had to search for isolated reports of middle school/junior high research in the more general educational research journals. In the year of 1977 the National Middle School Association sponsored the first middle school research symposium at its annual meeting. Resulting from that symposium was the first edition of The Middle School Research Annual. For the first time middle level educational researchers had their own national seminar and research journal.

In response to the acceptance of the initial Middle School Research Annual by both researchers and middle level practitioners and policy makers, two more editions were published by the University of Wyoming for the National Middle School Association. Last year the association took over direct responsibility for publishing the papers selected for presentation at the national research symposium. The new title Middle School Research Studies was used for the first time. The National Middle School Association is pleased to be able to once again publish in one volume some of the best research done in early adolescent education in the past year.

All of us who are involved in the effort to improve the study of middle schools and junior highs owe a debt of thanks to J. Howard Johnston and Glenn Markle of the University of Cincinnati. Under their leadership the symposium and Research Studies have been born, grown, and been sustained. We hope that the tradition that they have started will continue to prosper as it serves the needs of researches and practitioners.

This year the editorial board has selected ten papers from among those submitted to be published in this edition. These papers represent a broad range of middle school research topics and methodologies. Studies in this volume deal with school climate and organization. Others examine teachers: their involvement in decision making and job satisfaction. A third set focus on student attitudes toward science and student response to the loss of a parent. One study focuses on parental behavior. Two studies are related to the teaching of particular subject areas: language arts and reading. Finally, an ethnographic study takes a wholistic look at middle school classrooms.

Each of these studies was selected because of its relevance to the field and the quality of the design and execution of the research. The National Middle School Association hopes that they inspire more researchers to devote their efforts to middle school research and practitioners to evaluate and draw implications for improving the instruction of early adolescents.

Thomas Owen Erb

Lawrence, Kansas
August, 1981

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A SOCIAL CLIMATE PERSPECTIVE ON HOME/SCHOOL RELATIONSHIPS IN THE EARLY SECONDARY SCHOOL YEARS

Ann Thompson
Iowa State University
Ames, IA 50011

The Problem

Whereas the topic of home/school relationships has received increasing attention in the literature, most of the current work in this area has focused on the elementary school level. (Lightfoot, 1978) The work cited in this paper, however, begins to explore the nature of the home/school relationship in the early secondary school years and some of the possible implications of this relationship.

In particular we focus on the social climate of the secondary school with respect to home/school relationships and possible relationships between this social climate and some of the negative behaviors commonly attributed to early adolescent children. We see this social climate as discouraging parental knowledge and involvement at school, and thus, creating a widening gap between the world of the adolescent child and the world of the parent.

The study itself, however, began with a more general concern about the effect of the transition from elementary to secondary school on student behaviors. Initially, we undertook a generalized probe into the transition from elementary to secondary school; our focus was on the participants in this transition, both the students and their parents, and on their perspective on the salient aspects of this transition. Joining a larger effort designed to study students and studenthood (Block, 1977; Elmore and Thompson, 1980), we conducted ethnographic, indepth interviews with 13 seventh grade students who had just entered secondary school; we also interviewed the parents of each of these students.

One strong theme that emerged from both parent and student interviews was the changed relationship of home and school as the students enter 7th grade and the secondary school structure. Each of the parents interviewed indicated some feelings similar to those expressed by Mrs. F: "Now is the time for him to do it on his own. It's up to him now. You have to let go sometime." Mrs. R represented another common note on this theme: "Those teachers have five classes of kids; they can't be expected to spend much individual time with parents." Mrs. X sums up some of these feelings when she says, "I don't feel it is appropriate for me to be checking on her anymore." One student (RM) offered a different perspective on the same issue when he said: "Well, it's better because they (the teachers) don't get to know you or your parents as well."

Even parents who had had a history of school involvement, reported little knowledge of what the specifics of junior high were like for their children. When asked to describe a typical day for their child, most parents appeared surprised to discover they didn't know these details. One mother replied, "You know, I'm really going to have to sit down and talk to him about this."

Another strong theme emerging from our student interviews was

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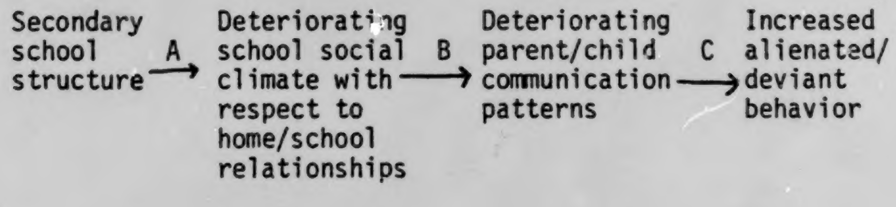
the reports of an increased number of deviant activities occurring at school. Students reported much bullying going on and the elaborate tactics they had developed to cope with this problem. The students also reported more drug users, vandalism and thefts. This information did not seem to be shared with parents, however. In fact, one of our interviewees reported being very upset when his mother observed him being tripped on his way to her waiting car. When his mother attempted to discuss the incident with him, he diverted her to another topic. Even when they were being abused at school, students seemed very reluctant to share this part of their world at school with parents.

Thus, our interviews suggested that something about the institution of the secondary school seemed to be separating the worlds of school and home. Although we agree with the developmentalists that some shift of influence from family to peer group is a natural part of the maturation process, our interviews suggested that the secondary schools in our society tend to accentuate this natural decrease in family influence on the child and increase in peer influence. Keniston has termed this concept "collective estrangement" indicating that "societies differ in the extent to which they heighten or minimize the inevitable estrangements of growth. When the conventions of living in any society accentuate some of the universal estrangements of human development, we can speak of collective estrangement..." (Keniston, 1977, p. 22). It became our hypothesis that the secondary school system has contributed to such a collective estrangement in the family relationship of the young adolescent and that the estrangement might be linked to an increase in deviant, alienated behaviors.

The Model

Having developed this general hypothesis, we next set out to develop a research model to test our thinking. Basically the resultant research model asserts that the social climate of the early secondary school with respect to home/school relationships may be causally implicated in deteriorating parent/child communication and increasing misbehaviors among early adolescent children.


Secondary school structure
A
Deteriorating school social climate with respect to home/school relationships
B
Deteriorating parent/child communication patterns
C
Increased alienated/ deviant behavior

Link A in our model, then, asserts that the structure of the secondary school creates a social climate separating the world of school and home. In Link B, we assert that this deteriorating social climate with respect to home/school relationships creates a gap which decreases both the quality and quantity of parent/child communication as defined. Link C, then, asserts that this decrease in quality and quantity of parent/child communication patterns increases alienated/deviant behaviors among early adolescents.

Operationalization of the Variables

Using the work of Moos (1978) and others, we defined social climate as a combination of spoken and unspoken presses in the environment and actual behaviors. Specifically, we defined five major dimensions in our operationalization of school social climate with respect to home/school relationships:

(1) Press toward parent involvement
(2) Press toward parent knowledge of school
(3) Press toward parent power and influence at school
(4) Actual parent involvement
(5) Parent/student commitment to school policies.

We used early secondary schools for our work and defined them by size (900-1500 students), departmentalization (specialist teachers meeting at least five different classes daily) and grade level (grades 7 and 8). This type of school is commonly called a "junior high school" in the literature.

We operationalized quantity and quality parent/child communication patterns in terms of amount and type of information shared with parents. Assuming the basic orientation suggested by Kandel and Lesser, we attempted to measure what type of information is shared with parents and whom students consult for advice in various areas. We also attempted to obtain information on the amount and type of time students spend with their parents and to what extent students wish to model themselves after their parents.

Alienated/deviant behaviors were operationalized using the work of Blumenkrantz and Tapp (1977) and Wynne (1978) combined with that of Gallup (1980). We defined these behaviors as drug use, smoking, vandalism, school discipline problems and student social concern.

Research

Each of the links in our research model has been studied. After briefly summarizing the work, we will indicate how we see our model fitting into and extending this work.

Link A

Work suggesting that secondary school structures create differential social climates marks a growing segment of the school effects literature. Several recent studies, and one older, classic study, all have indicated that within different types of secondary school structures, different social climates are created and these social climates differentially affect student behavior (Rutter, 1980; Wynne, 1980; Reynolds, 1975; Kelly, 1980; Barker and Gump, 1953). Work specifically comparing the differing effects of secondary and elementary school structures on school social climate is, however, more scant. In one such study, however, it is suggested that something about the climate of the junior high school causes "twelve year olds in junior high school to have lower global self-esteem, lower specific self-esteem, higher self-consciousness, and greater instability of self-image than their age-peers in elementary school." (Simmons, 1978, p. 72).

Link B

Since this portion of the model represents the largest jump in our own thinking, we would expect to find little work relating directly to this specific link. While this is in fact the case, there are several lines of work which point indirectly toward the possibility that secondary school structure does in fact negatively affect parent/child communication patterns (Coleman, 1961; Ogbu, 1978; Dreeben, 1968).

Link C

The linkage of parent/child communication patterns with alienated/deviant behaviors suggested in this link has been a common theme in the literature.

On a general level, the failure of the American family to interact effectively with its young and the subsequent emergence of a strong alienated adolescent subculture is certainly a major theme in current research (Mead, 1970; Coleman, 1961, 1974; Bronfenbrenner, 1970). Several authors have also linked the last two variables in our model in terms of more specific criteria. Parental support and family cohesion are both variables linked by one set of authors positively to adolescent self-esteem (Thomas, Gegas, Weigert and Rooney, 1974). Family cohesion or engagement has also been linked negatively with occurrences of delinquent behavior (Glueck and Glueck, 1950; Ney, 1958; Andry, 1960; Medinnus, 1965; Hetherington et al, 1971; Jensen, 1972).

Thus, we observe existing evidence for each of the individual links in our model, and considering the bodies of literature cited as a whole, we believe that our model extends and integrates much of this current work cited in our review.

The Hypotheses

Having examined "the fit" of our model with other research, we now present three major hypotheses designed to test the model. The first hypothesis is designed to test the effect of early secondary school on school social climate with respect to home/school relationships:

H_1: Student and parent reports of school social climate with respect to home/school relationships will show an abrupt, non-linear decline when students enter secondary school in grade 7.

The second hypothesis is designed to test the connection between school social climate with respect to home/school relationships and parent/child communication patterns.

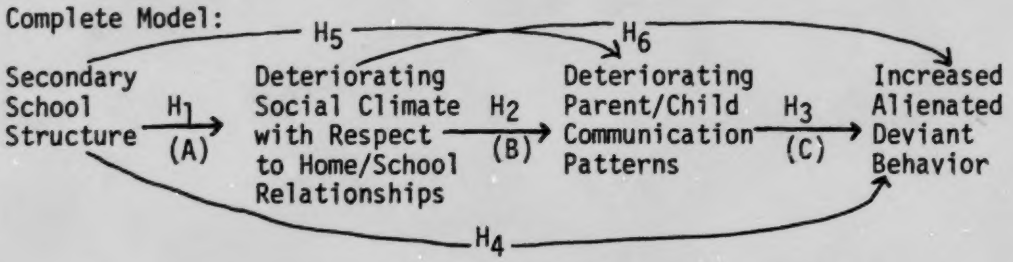
H_2: School social climate with respect to home/school relationships will correlate positively and significantly with parent/child communication patterns.

The third hypothesis is designed to test the connection between parent/child communication patterns and alienated/deviant behaviors.

H_3: Scores on parent/child communication patterns will correlate negatively and significantly with scores on alienated/deviant behaviors as reported by students and parents.

In addition to these three hypotheses testing the major linkages in our model, we present three auxillary hypotheses designed to test alternate linkages in the model. The following figure indicates which alternate, direct linkage each hypothesis is designed to test.

Complete Model:


H5
H6
Secondary School Structure
H1
(A)
Deteriorating Social Climate with Respect to Home/School Relationships
H2
(B)
Deteriorating Parent/Child Communication Patterns
H3
(C)
Increased Alienated Deviant Behavior
H4

The fourth hypothesis, then, is designed to test the direct linkage between secondary school structure and alienated/deviant behaviors without the intervening variables, social climate and parent/child communication patterns.

H_4: (a) Student and parent reports of alienated/deviant activities will show an abrupt, non-linear increase when students enter secondary school in grade 7.

(b) School social climate with respect to home/school relationships and/or parent/child communication patterns will not explain a significant amount of this relationship.

The fifth hypothesis is designed to test the direct linkage between secondary school structure and parent/child communication patterns without social climate as an intervening variable.

H_5: (a) Student and parent reports of parent/child communication patterns will show an abrupt, non-linear decrease when students enter secondary school in grade 7.

(b) School social climate with respect to home/school relationships will not explain a significant amount of this relationship.

The sixth hypothesis is designed to test the direct linkage between social climate and alienated/deviant behaviors without parent/child communication patterns as an intervening variable.

H_6: School social climate with respect to parent/child relationships will correlate negatively and significantly with reports of alienated/deviant behaviors. Parent/child communication patterns will not explain a significant amount of this relationship.

Design

In order to test these hypotheses on a large sample, we set up a modified time-line design. We chose to administer questionnaires testing our variables for 5th, 6th, 7th, and 8th grade students and their parents in a school district where students move from elementary to secondary school between grades 6 and 7 in order to observe possible discontinuous, non-linear changes in our variables as students move from elementary to the secondary school system. Whereas we would expect some changes in these variables due to maturation and development, our interest was in abrupt, non-linear changes attributable to the change in institution type.

Procedures

As indicated, we initially interviewed thirteen seventh grade students and ten of their mothers; results from these interviews were used to determine the problem for our study.

Phase II of the project was a pilot study designed to test the questionnaire items for clarity and to define specific procedures for administering the questionnaires. In Phase II we administered questionnaires to 90 5th and 6th grade students in the district we had selected for our larger study. As a result of Phase II, we reviewed several questionnaire items. As these changes did not alter the content of the questionnaires, we opted to include Phase II data in our larger study.

In Phase III, we surveyed 661 students and parents from 10 schools in an upper-middle class suburban community. Students first were given a parent permission form which had to be returned before they were permitted to participate in the study. Students who had returned the form completed the surveys in class and took their parent's survey home to be completed. Students and parents were given surveys with the same ID numbers on them. Our final N for students was 661 and for parents 501.

Instruments

Student and parent questionnaires were constructed to measure three of the variables as operationalized in our model: school social climate with respect to home/school relationships, parent/child communication patterns and alienated/deviant behaviors. We used existing scales in each of these areas as models which we then adapted to our specific operationalizations of the variables.

The first twenty-three items on the student survey and twenty-six items on the parent survey were likert-type items with five options from strongly disagree (SD) to strongly agree (SA). The next ten items on the student survey and seven items on the parent survey were also likert items, but these items asked for the participant's opinions on how "most students" or "most parents" behaved or felt. These items were followed by five multiple choice items on the student survey and two multiple choice items on the parent survey. The final multiple choice item on each survey contained nine parts. The last part of the student survey contained seven demographic questions; as we had student and parent surveys matched by numbers, we did not need to ask this information again on the parent surveys. Both surveys were five pages long including the cover sheet.

Instrument Validity and Reliability

In order to content validate our variables and dimensions from the participants' points of view, we opted to use multi-dimensional scaling and clustering procedures to determine the actual categories emerging from the student and parent questionnaire results. The parent categories defined through these procedures were markedly similar to our pre-conceived variables. In fact, the only change involved the emergence of a cluster which indicated a fourth variable which we termed Academic Emphasis at School. All the items clustering in this new grouping were originally constructed to measure our social climate variable.

Although the student data did indicate three major categories similar to our pre-conceived variables, more student items changed categories due to the clustering procedures. For example, "Most parents know what is going on at this school" clustered with reports of alienated/deviant behaviors and not with school social climate as originally designed. A total of seven student items "moved".

We also opted to abandon our original dimensions within variables and use instead, strong mini-clusters within the variable determined by the hierarchial clustering procedures combined with visual scanning. For parents, we observed two strong clusters in social climate with respect to home/school relationships: press toward parent involvement and press toward parent knowledge. We also observed one strong cluster within parent/child communication which contained items dealing with the quantity of information shared with parents; we termed this mini-cluster degree of parent/child communication. Within the alienated/deviant behaviors variable, we observed one mini-cluster which contained items asking for reports of specific deviant behaviors (use of drugs, alcohol, etc.) and thus we termed this mini-cluster specific alienated/deviant behaviors.

For students, one strong mini-cluster was defined within social climate and this mini-cluster contained two items measuring student perceptions of their own control and power at school; we termed this mini-cluster student power.

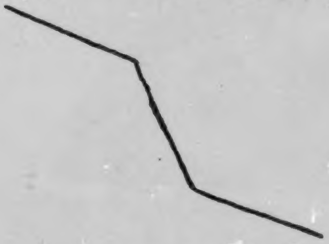
The remaining student mini-clusters were identical to those defined for the parents: specific alienated behavior within the alienated/deviant behavior variables and degree of parent/child communication within the parent/child communication variable.

Reliability checks were run by checking student responses to two items measuring the same information, calculating gamma correlations for student and parent responses to similar questions within each questionnaire, and checking consistency of responses across student and parent questionnaires on one factual item asked to both parents and students. Our results here indicated consistency rates above 80% and gamma correlations on similar items above .77.

Data Analysis

Our choice of data analysis procedures reflected our concern for discovering non-linear, abrupt changes in our variables as students enter secondary school. Given our belief that some changes in our variables will occur for developmental reasons alone, we were careful throughout to avoid simply correlating institution type with our other variables without first examining and describing the nature of the changes in the variables over the years studied.

In order to test for these abrupt, non-linear changes hypothesized in H_1, H_4 and H_5, we first performed ANOVA's to determine significant differences between grades. Given significant results, we tested for linearity and non-linearity in the data. If both these results were significant, we examined both graphs and t-tests to determine where the non-linearity occurred in the data. Here we looked for graphs with the following pattern:



indicating the steepest decline between grades 6 and 7. We also looked for a pattern of t-tests showing NS-S-NS, thus indicating a non-significant change between grades 5 and 6, a significant change between grades 6 and 7 and another non-significant change between grades 7 and 8. (See Table VIII)

To test H_2, H_3 we used Pearson correlations between the variables and mini-clusters involved, looking for significant correlations.

To test the power of the intervening variables in H_4, H_5, and H_6, we used Pearson partial correlations holding the intervening variables constant. We also used regression procedures to provide an additional check on our results from H_4, H_5 and H_6.

Given the explanatory nature of our work, we set the alpha level at .05 throughout the study.

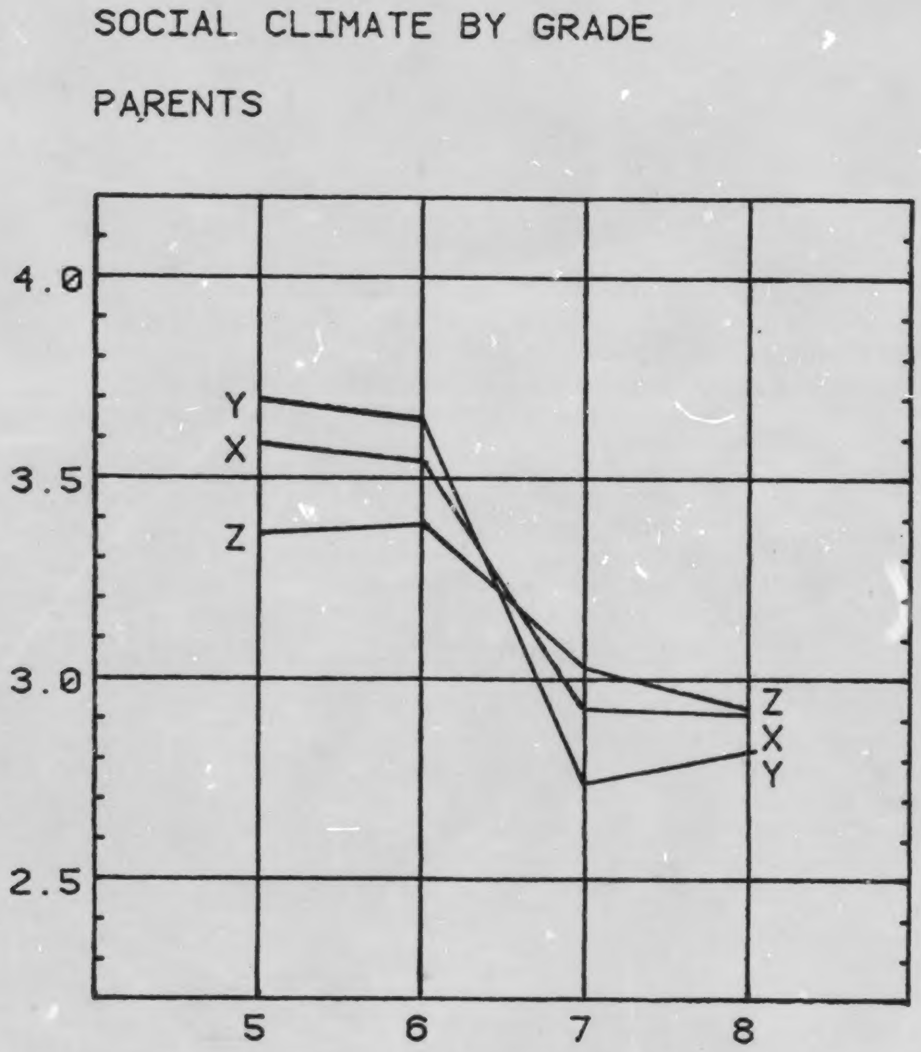
Results

We now summarize our results reporting the major findings on each hypothesis. (For a more detailed presentation of results, see Thompson, 1981).

H_1: Here we found that school social climate with respect to home/school relationships as reported by both students and parents does decline in an abrupt, non-linear manner as students move from elementary to secondary school in grade 7. The mini-clusters we defined for the social climate variable, press toward parent involvement (parents), press toward parent knowledge (parents) and student power (students) all showed the same significant declines. Table I summarizes these results for parents.

H_2: Significant correlations were also observed between school social climate with respect to home/school relations and parent/child communication patterns. These results were replicated when mini-clusters were substituted for the larger variables.

Table I



X = ENTIRE VARIABLE
Y = MINI-CLUSTER: PARENT INVOLVEMENT
Z = MINI-CLUSTER: PARENT KNOWLEDGE

except in the case of the student-social-climate mini-cluster student power and the parent mini-cluster labeled parental encouragement of independence. Table II summarizes these results.

Table II. Correlation Tables

School Social Climate/Parent-Child Communication Patterns

	Parent/Child Communication	Degree	Independ.
Student Results:			
Social Climate	.45 (p .0001)*	.32 (p .0001)*	
Mini-Cluster: Student Power	.05 (p = .11)	.03 (p = .22)	
Parent Results:			
Social Climate	.10 (p = .01)*	.10 (p = .01)*	.06 (p = .72)
Mini-Clusters: Involvement	.15 (p .0001)*	.17 (p .0001)*	.08 (p = .70)
Knowledge	.22 (p .0001)*	.21 (p .0001)*	.05 (p = .75)

H_3: Significant correlations were observed for students between parent/child communication patterns and the mini-cluster degree of parent/child communication and alienated/deviant behaviors and its mini-cluster reports of specific behavior; these correlations were not, however, significant for parents. The parent mini-cluster encouragement of independence also did not correlate significantly with either the alienated/deviant behavior variable or its mini-cluster. These results are summarized in Table III.

Table III. Correlation Tables

Parent/Child with Alienated/Deviant Behavior

Student Results:	Parent/Child	Degree	Independ.
Alienated/Deviant Behv.	-.43 (p .0001)*	-.28 (p .0001)*	
Specific Behaviors	-.33 (p .0001)*	-.19 (p .0001)*	
Parent Results:			
Alienated/Deviant Behv.	-.04 (p = .15)	-.06 (p = .11)	-.008 (p = .89)
Specific Behaviors	-.05 (p = .13)	-.06 (p = .12)	-.010 (p = .84)

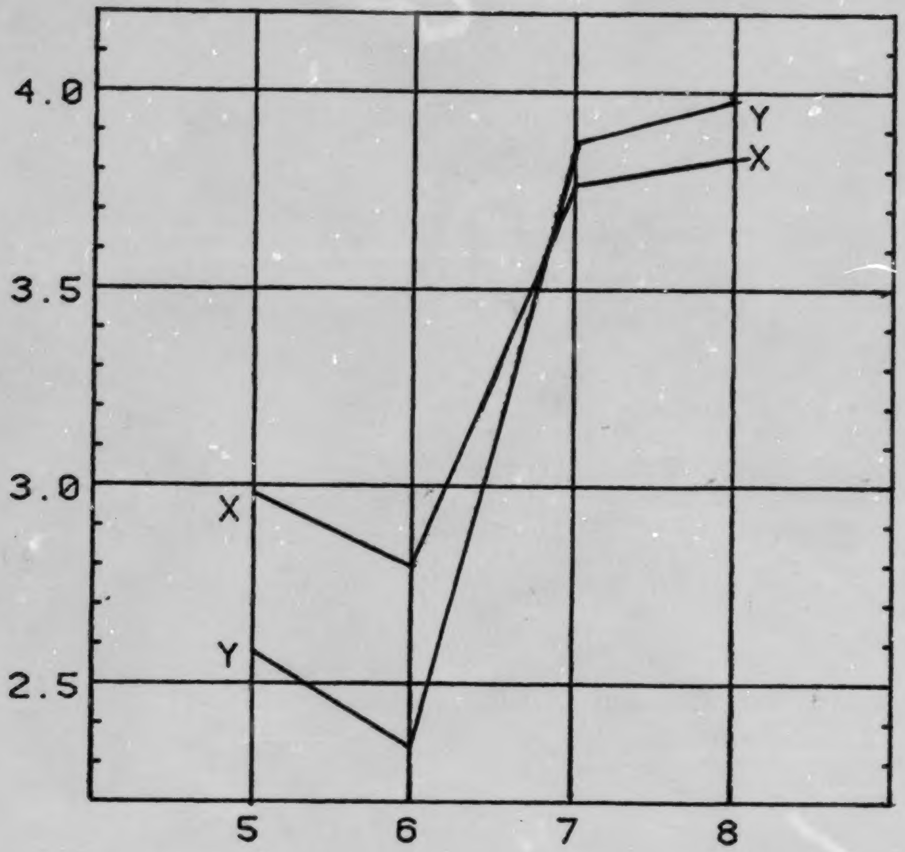
H_4: We did observe a significant, non-linear increase in both parent and student reports of alienated, deviant behaviors as students enter secondary school; these results for students are shown in Table IV, and our partial correlation procedures indicated that school social climate does explain a significant amount of this relationship. Parent/child communication patterns, however, explain a significant amount of this relationship for students and not for parents. Table V summarizes these results.

H_5: We did not find the hypothesized non-linear decrease in parent/child communication patterns hypothesized for either parents or students, but did find this decrease for the mini-cluster "degree of parent/child communication". Partialing out social climate, we found that for students, social climate accounted for a significant amount of the correlation between institution type and decreased degree of parent/child communications (H_5). For parents, we found that institution type and degree of parent child communication did not correlate significantly and that social climate was not a significant intervening variable. These results are summarized in Table VI.

Table IV

DEVIANT BEHAVIOR BY GRADE

STUDENTS



X = ENTIRE VARIABLE
Y = SPECIFIC BEHAVIORS

Table V. Pearson Partial Correlations

Institution Type/Behavior
(5/6 vs 7/8)

Student Results:	
Institution Type Behavior	.51*
Partial with Social Climate Constant	.41*
Diff. = .10*	
Partial with Parent/Child Communication Constant	.41*
Diff. = .10*	
Partial with both Constant	.37*
Diff. = .14*	
Parent Results:	
Institution Type/Behavior	.56*
Partial with Social Climate Constant	.41*
Diff. = .15*	
Partial with Parent/Child Communication Constant	.55*
Diff. = .01*	
Partial with both Constant	.41*
Diff. = .15*	

Table VI. Partial Correlations

Institution Type/Degree of Parent Child Communication
Controlling for Social Climate

Student:	
Institution/Degree of Parent/Child Communication	-.26*
Controlling for Social Climate	-.15*
Diff. = .11*	
Parent:	
Institution/Degree of Parent/Child Communication	-.03
Controlling for Social Climate	.03
Diff. = .06	

H_6: Finally, we found that school social climate with respect to parent/child relationships correlates negatively and significantly with reports of alienated/deviant behaviors and that while parent/child communication explains a significant amount of this correlation for students, parent/child communication patterns are not a significant explanatory variable for parents. Table VII summarizes these results.

Table VII. Partial Correlations

Social Climate/Alienated Behaviors
Control for Parent/Child Communications

Students:	
Social Climate/Alienated	-.43*
Control for Parent/Child	-.27*
Diff. = .15*	
Parents:	
Social Climate/Alienated	-.60*
Control for Parent/Child	-.59*
Diff. = .01	

Using regression procedures, we reinforced the findings from H_4, H_5, and H_6 and found that social climate with respect to home/school relationships is a significant predictor of alienated/deviant behaviors, while parent/child communication patterns are a significant predictor of alienated/deviant behaviors only for students.

As a whole, then, our results indicate a significant abrupt decrease in school social climate with respect to home school relationships, degree of parent/child communication patterns, and an abrupt increase in reports of alienated/deviant behaviors as students enter secondary school. Furthermore, our results indicate the power of the social climate variable in our model as a predictor of alienated/deviant behaviors for both students and parents and the fact that parent/child communication patterns represent a less powerful portion of the model for both students and parents.

Conclusions

The General Deterioration

On a general level, our data indicate a deterioration in important aspects of all these of our varuables as students enter secondary school. Pooling our data from all the variables and mini-clusters and comparing results on t-tests between means for fifth and sixth, sixth and seventh (the year students change to secondary school), and seventh and eighth grade provided an alternate method for summarizing these results.

In all, we measured a total of 3 variables and 3 mini-clusters for students and 3 variables and 4 mini-clusters for parents. Twelve of the thirteen variables and mini-clusters declined significantly when students moved from elementary to secondary school between grades 6 and 7. Nine of the 13 variables and mini-clusters followed the NS-S-NS pattern predicted for changes between grades 5, 6 and 6, 7 and 7, 8. These results are summarized in Table VIII. Looking at this summary of our findings, it seems evident that for students entering secondary school and their parents, many different things are going "downhill" rather abruptly. Our data rather clearly suggest that at least some of this downhill tendency can be traced to declining emphasis on home/school relationships at the secondary level.

Certainly we are not first to note some of these negative effects of early secondary school. In a scathing attack on the secondary school system in Britain, Charity James comments, "certainly there is not justification in terms of human development for the sharp discontinuity in social experience to which we subject young people in the years embracing or preceding puberty" (James, 1973, pp. 14-15), and then goes on to contrast the British secondary system with their "admirable model" for primary education. American authors have presented markedly similar criticisms of American early secondary schools; for example, "There are few proponents of junior high schools these days. They are seen for what they usually are: ill-conceived, watered-down high schools plagued by a lack of fit between the schools' organization and their students".

Thus while criticism of the secondary school system is neither a phenomena unique to us or a new phenomena, our research model does cast some of this general criticism in a more specific light and indicates the need for more attention to home/school relationships at the early secondary level.

Implications

Our results rather clearly indicate that home/school relationships do deteriorate on the secondary level and that this deterioration may have negative implications on student behavior. Thus our work suggests that researchers, administrators and teachers at the early secondary school level need to focus more attention on the linkages between home and school for early adolescent children.

Administrators and Schools

Our results show quite clearly that some junior high schools are creating social climates not conducive to parent involvement at school and knowledge of school. This social climate seems to have a negative effect on parent/child relationships and also be related

Table VIII

Changes in Variables and Mini-Clusters Across Grade Level

	5/6	6/7	7/8
Parents:			
I. School Social Climate	NS	S	NS
A. Press Toward Involvement	NS	S	S
B. Press Toward Knowledge	NS	S	NS
II. Parent/Child Communication	NS	S	NS
A. Degree	NS	S	S
B. Independence Emphasis	NS	NS	NS
III. Alienated/Deviant Behaviors	NS	S	NS
A. Specific Reports			
Students:			
I. School Social Climate	NS	S	NS
A. Student Power	NS	S	NS
II. Parent/Child Communication	S	S	S
A. Degree	NS	S	S
III. Alienated/Deviant Behaviors	NS	S	NS
A. Specific Behaviors	NS	S	NS

to an increase in alienated and deviant behaviors. It is possible that efforts on the part of the school to improve parent involvement and knowledge might significantly help the school in terms of lessening behavior problems in students.

As a first step, junior high schools and middle schools need to be aware of and measure the social climate they are creating with respect to home/school relationships. We doubt that these schools purposefully exclude parents from their activities; in fact, it is not uncommon to hear administrators lament the lact of parent interest and involvement at this level. Consciously or unconsciously, however, our results indicate that junior high schools studied are discouraging parent involvement and knowledge. Using instruments similar to ours, but adapted to the particular situation, would give early secondary school administrators an accurate reading on the existing social climate with respect to home/school relationships and thus the beginning of some direction for change.

After the measurement and evaluation stage, early secondary schools need to take positive action to improve the secondary social climate with respect to home/school relationships. If parent knowledge of school measure low from the parent and student perspective, steps can be taken to improve this knowledge. Information nights, open houses, parent newsletters, open invitations for parents to visit school, student panels, student and parent panels are all possible programs which might help with this situation.

If parent involvement scores are low, administrators need to begin to work on programs to encourage this involvement. As student attitudes towards parents in their classroom appear to be changing at this level, it might be prudent to form a committee of students, parents, teachers and administrators to begin to map out appropriate and useful parent involvement activities in the school. Certainly types of involvement will change as students mature, but a committee representing all parties should be able to devise appropriate and useful activities.

At early secondary school level, administrators also might want to consider curriculum-related activities which could involve both students and their parents. Evening classes on subjects of interest to both generations might be a useful method to increase parent connection with the school.

Certainly administrators could also involve parents in combating vandalism and behavior problems on campus. Other work has indicated that the presence of parents on campus tends to decrease school vandalism and disruptive behavior; certainly our work points to this conclusion also. Formation of a parent committee on vandalism and ensuring the presence of numerous parents on the campus during the regular school day, might be a very positive step in controlling some of the behavior problems at school.

Teachers

Our results clearly show that teachers concerned about youth behavior problems need to work on establishing more effective linkages with the home. Parent conferences, school programs, attempts to involve parents in curriculum-related projects, all are techniques teachers could initiate to help increase these linkages.

Traditionally, unlike elementary teachers, secondary teachers have neither been trained nor encouraged to interact with parents. Our results indicate, however, that these patterns need to be changed. We would like to see some of these programs initiated and followed-up with studies similar to our own to determine possible affects on school social climate, parent-child relationships and adolescent deviant behavior patterns from the interventions. Such interventions might include active parent advisory groups, organized parent volunteer programs, curriculums designed for parent and child to study a subject together, core programs where one teacher is primarily responsible with communicating with a particular child and his/her family, formalized parent conference activities, parent newsletters, campus supervision conducted by parents. Any one of these interventions provides an inroad for further study.

Our study begins to implicate the school structure and the resulting home/school relationship in certain behavioral areas. If results from elementary school work are replicated, it might be true that parent involvement at school or lack thereof might have academic implications for young people. We would suggest that a study focusing more on the academic effects of the changing home/school relationship might also prove very useful.

Summary

Our results suggest that the social climate of the school regarding parent/school relationships changes abruptly as students enter secondary school. Parents and students perceive the school as not encouraging parent/school contacts and both seem to feel that parent involvement is no longer as appropriate. The school, consciously or unconsciously, seems to be further separating the world of adolescent child and parent. This growing separation is continually documented in our results.

Our work suggests that the linkage between home and school does break down significantly as students enter secondary school and that this change is detrimental to both environments and does in fact make a difference. For the family, this breakdown seems to be linked with decreased communication with the early adolescent child. For the school, the breakdown can be linked with an increase in alienated, deviant behaviors. Our results clearly indicate that home/school relationships are an area of appropriate concern for researchers, administrators, and teachers at the early secondary school level.

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TEACHER INVOLVEMENT IN DECISION MAKING: AN ANALYSIS AT THE MIDDLE AND JUNIOR HIGH SCHOOL LEVEL

Gail L. Thierback
The University of Wisconsin-Milwaukee
Milwaukee, Wisconsin

The renewal and improvement of secondary education has been a focus of numberous research efforts in recent years. One facet of these secondary school research endeavors has been to explore administrative processes and the school operation. Of the administrative processes deserving attention, the decision-making process has consistently emerged as an area of administrative and teacher concern. Researchers have indicated a need exists to develop strategies for determining appropriate teacher involvement in the decision-making process.

To this end, a recent research study explored the nature of teacher involvement in decision making at the middle and junior high school level. The study was designed with four purposes in mind. First, the extent to which teachers were (actual) and wished (desired) to be involved in the decision-making process was examined. Second, the difference between teachers' perceived actual and desired levels of involvement was determined; thus, yielding a decision condition of deprivation, equilibrium, or saturation which was then related to teacher job satisfaction. Third, teachers' zones of acceptance were measured by assessing their levels of interest and expertise in specified decision issues and these zones of acceptance were then related to the previously determined decision conditions. Finally, the relationship between decision involvement and zones of acceptance and teacher job satisfaction was examined.

RELEVANT LITERATURE AND RESEARCH

The decision-making process is a highly complex phenomenon. Yet, the complexity is seldom recognized when criticisms are made regarding the process. Decision making has traditionally been approached as a rational, contingent process (March and Simon, 1958) in which decision makers know the set of alternatives from which they will choose their action, know the consequences that will follow the selection of each alternative, rank-order the sets of consequences from the most preferred to the least preferred, and finally select the alternative with the preferred set of consequences.

Lipham (1974) elaborated on the importance of the formulation of alternatives related to a decision issue. Thus, his decision-making model expanded on the typical rational model and advocated the involvement of individuals other than the decision maker in the process. Furthermore, Lipham identified three dimensions of the decision-making process; decision content, decision states, and decision involvement. Decision content refers to "what" the decision deals with and relates to six functional areas of the educational operation--curriculum and instruction, staff personnel, student personnel, finance and business management, school plant services, and home-school-community relations. Decisions, depending on their complexity, may deal with one or more of the content areas.

Regarding decision content, Mohrman, Cooke, and Mohrman (1978), basing their research on Parsonian theory regarding the various levels of an organization's control hierarchy, examined involvement in decision making in relation to Parsons' (1951) technical and managerial domains. The basic premise behind these domains is that within each decision content area

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certain issues are technical (operational at the teacher level) and other issues are managerial (schoolwide in scope). Mohrman, Cooke, and Mohrman found that teachers desire greater involvement in technical issues than in managerial issues and that the desire to participate is not evenly distributed throughout the organization. Along the same line of research, Duke, Imbers, and Showers (1980) investigated teacher involvement in and commitment to decision making and found most teachers were less than anxious to participate in schoolwide or managerial decision making and derived little satisfaction when they did.

Regardless of content, attention must be given to the second dimension, decision stages, or "how" a decision is made. Lipham (1974) identified six stages of decision making which include the following:

1. Identifying the problem
2. Defining the problem
3. Determining alternatives
4. Making a decision choice
5. Implementing the decision
6. Evaluating the effectiveness of the decision

Again, Lipham noted that at each stage of the decision-making process involvement may vary.

Therefore, the stages of decision-making lead to the third dimension, decision involvement, which relates most clearly to this research study. The dimension of involvement concerns "who" is involved, and to what extent, in the decision-making process. Involvement may vary by issue, or content, and at different stages in the decision-making process. Those involved in the process may be internal or external to the organization. Intraorganizational groups who can be involved in the process include the board of education, the school superintendent, central office personnel, teachers, and students. Extra-organizational groups often include parents, community members, university personnel, and specialists or consultants. This study focused on the intra-organizational involvement of teachers in decision making.

Vroom (1959) identified administrative authoritarianism and need for independence as two personality variables that may be partially responsible for varying degrees of teacher involvement in decision making. Later, Vroom and Yetton (1973) attempted to determine the form and amount of involvement that should be used when addressing different decision issues. Their research was based on the assumption the "right decisions" are largely dependent on whether or not the administrator utilizes the appropriate person or persons in helping solve a problem. Vroom and Yetton found that managers use a less participative form of decision making when: (1) they possess all necessary information, (2) when the problem is well structured, (3) when subordinates' acceptance of the decision is not critical for implementation, or (4) when the personal goals of the subordinate are not congruent with the goals of the organization.

Bridges (1967) extended the early work of Vroom by developing a model for shared decision making based on Barnard's (1938) conceptualization of the "zone of indifference" which stated that subordinates have zones of indifference within which an administrator's decision will be accepted without question. Bridges argued that not all decision are appropriate for shared decison making and that there are issues which teachers do not care to be involved in.

Bridges, therefore, postulated the need for administrators to apply "a test of relevance" (interest) and a "test of expertise" (knowledge) before seeking to involve teachers in the decision-making process. The combined levels of interest and expertise serve as a means for determining whether or not a decision issue falls within the teachers' zones of indifference. Bridges suggested two basic propositions regarding the zone of indifference. First, as a principal involves teachers in making decisions located within their zone of indifference (low interest-low expertise), involvement will be less effective. Second, as a principal involves teachers in making decisions located outside their zone of indifference (high interest-high expertise), involvement will be more effective. The problem for the principal becomes one of deciding which decision issues clearly fall within teachers' zones of indifference and which issues do not.

Clear and Seager (1971) further explored the zone of indifference concept; however, they preferred to utilize a more positive label, "zone of acceptance." Their study found, when relating to either organizational maintenance or teachers' professional judgments, administrators can expect always to have a desire to exercise influence greater than teachers are willing to accept. In short, administrators' zones of desired influence are believed to be consistently greater than the teachers' zones of acceptance.

Hoy (1978), in summarizing the research regarding zones of acceptance, stated that issues in which subordinates possess high interest and expertise definitely fall outside of the zone of acceptance; and conversely, issues of low interest and expertise fall within the zone of acceptance. However, Hoy noted that the marginal situations (low interest-high expertise and high interest-low expertise) need careful administrative attention and involvement should be determined by the content of the specific issue in question.

The second aspect of decision involvement questions the extent to which an individual or groups should be involved in the decison-making process. A number of research projects have addressed the relationship between extent of involvement and teacher job satisfaction. Alutto and Belasco (1972) presented a theory of decison involvement based on the discrepancy between the actual and desired levels of involvement. The discrepancy obtained results in three conditions: (1) decision deprivation--individuals are involved in fewer decisions than desired, (2) decision equilibrium--individuals are involved in as many decisions as desired, and (3) decision saturation--individuals are involved in a greater number of decisions than desired.

Alutto and Belasco examined the relationship between the conditions of decision involvement experienced by teachers and their levels of satisfaction. A persistent theme in prior research had been that satisfaction levels vary directly with a sense of distributive justice concerning important issues. Therefore, denial of involvement in decision issues of importance was assumed to be related to lower levels of satisfaction. Alutto and Belasco affirmed this decision and found a differential distribution of both the desire to participate and its relationship to satisfaction levels thoughout the teacher group.

In the study by Alutto and Belasco (1972), those individuals in the decision condition of saturation scored lower in their perception of the system than those in a condition of equilibrium, but not as low as those in a condition of deprivation. These findings indicated perhaps a curvilinear relationship existed between the variables of involvement and job satisfaction. Attempting to refine the findings of Alutto and Belasco, Conway (1976) tested this curvilinear relationship. Conway's research confirmed, but only to a minor degree, the existence of a curvilinear relationship.

The studies conducted by Alutto and Belasco (1972) and Conway (1976) achieved a discrepancy measure by assessing the difference between actual and desired frequency (how often) of participation. Davis (1978) and Speed (1979) felt these procedures overlooked the variable of extent of involvement and their subsequent work included discrepancy measures of extent of involvement as well as frequency. Speed, however, found that teachers did not perceive these dimensions as being independent and concluded that the discrepancy measure regarding frequency of involvement was subsumed by the broader concept of extent of involvement.

Speed (1979) also noted that within each decision condition job satisfaction varied. Therefore he suggested that future researchers investigate possible moderating variables which influence, or explain the variance in, each decision condition. He proposed that these variables might include: leadership style of administrators, trust levels, role conflicts, organizational structure, student outcomes, organizational commitment, personality types, and teachers' zones of acceptance. This researcher chose to focus on the independent variables of decision condition and zones of acceptance in that these concepts relate to the organizational philosophy that schools should be structured to provide opportunities for those affected by a decision to participate in making the decision.

Overall teacher job satisfaction was chosen as the dependent variable of the study. This variable emerged from the application of social systems theory (Getzels & Guba, 1957) to the decision-making process. This theory illustrates the interdependence and working relationship between an organization and its members. Social systems theory allows for the analysis of the relationship between the institution, having certain roles and expectations, and the individual within the system, having certain personalities and need-dispositions. Job satisfaction results as the congruence between the institutional and personal dimensions is increased. The relevance of social systems theory to this study lies in its implication that involvement in the decision-making process is likely to increase the congruence between the expectations of the organization and the personal needs of the individuals involved.

Furthermore, the relationship between satisfaction and performance appears to be intuitively logical. However, various researchers (Brayfield & Crockett, 1955; Herzberg el. al., 1959; Aram el. al., 1971; Green & Organ, 1973) have concluded that this relationship is not a simple direct one. The majority of studies regarding worker job satisfaction have been conducted in industrial settings. Herzberg, Mausner, and Snyderman (1959) conducted their now-famous study of industrial employee job satisfaction and developed what is now known as the "two-factor theory of job satisfaction." The two-factor theory, simply stated, indicates that it is possible for workers to be satisfied and dissatisfied simultaneously. In addition, Herzberg el. al. found that satisfaction is dominated by intrinsic aspects or motivators of the job (i.e. achievement, recognition, work itself, responsibility, advancement), while dissatisfaction is dominated by extrinsic or hygiene factors (i.e. salary, interpersonal relations with subordinates and peers, supervision, administration, working conditions, personal life). Furthermore, Herzberg et. al. concluded that while hygiene factors may prevent dissatisfaction, these factors do not necessarily lead to job satisfaction, whereas the motivators do.

For purposes of this research project, it was assumed that increased involvement in decision making would result in increases in both the motivator and hygiene factors. Furthermore, administrators who involve others in the decision-making process have an opportunity to provide intrinsic satisfaction to teachers; whereas, they often have less opportunity to influence extrinsic job factors.

Katzell, Yankelovich et. al. (1975) in an extensive literature review cited a number of studies (Morse & Riemer, 1956; Vroom, 1960; Seashore & Bowers, 1963; Powell & Schlacter, 1971) all of which reported a significant relationship between decision involvement and job satisfaction. The findings of these studies indicated that:

1. Work groups whose members have more say over the group's production goals, work, and working conditions usually have higher average job satisfaction.
2. Members of participative groups have stronger work motivation.
3. Productivity is usually, but not always, higher in groups having more control.
4. Two conditions that seem effective in improving productivity via changed control patterns are when groups are given a greater say in goal setting and when groups are involved in determining modes of pay for performance.

This study combined the concepts addressed by Barnard (1938), Bridges (1967), Clear and Seager (1971), Mohrman, Cooke and Mohrman (1978), and Hoy (1978) regarding zones of acceptance with the concepts regarding decision condition presented by Alutto and Belasco (1972), Conway (1976), Davis (1978), and Speed (1979). Hoy's model of participative decision making provided a conceptual integration of the concepts in an interelated, visual framework.

HYPOTHESES

The following hypotheses were derived based on the literature and research reviewed:

1. The mean scores attained on job satisfaction will not differ for each decision condition.
2. The mean scores attained on job satisfaction will not differ with regard to teachers' interest or expertise in the decision issues.
3. There is no significant relationship between the independent variables of decision condition, interest, and expertise and the dependent variable of overall teacher job satisfaction.

SAMPLING TECHNIQUE

In order to obtain a representative sample of middle and junior high school teachers, 30 schools were randomly selected from the Wisconsin Department of Public Instruction Directory according to the following criteria:

1. The school was a middle or junior high school consisting of any combination of students enrolled in grages 6, 7, 8, and/or 9.
2. The student enrollment exceeded 350, which would ensure a teaching staff of at least 12 teachers.

Careful attention was paid to ensure that the number of participating schools would provide a sufficiently large enough sample of teachers to yield an acceptable amount of data from which reliable and valid conclusions could be drawn.

Of the 30 schools selected, 23 agreed to participate in the study. Urban, suburban, and rural schools were included in the sample and enrollment ranged from 350 to 1150 students. Principals willing to participate returned a teacher roster by mail. From each list, 12 teachers were randomly selected to participate in the study. The total sample consisted of 276 teachers.

A letter which identified the selected teachers was mailed to each responding principal. During a follow-up telephone call, participation was confirmed and a date was set to visit the school and administer the questionnaire.

DATA GATHERING AND ANALYSIS PROCEDURES

Field survey methodology was employed to gather data relevant to involvement by secondary teachers in decision making and their perceived levels of job satisfaction. The questionnaire developed for this study was suitable for mailing, however, the researcher chose to visit the participating schools and administer the questionnaire to the selected teachers. Of the 276 teachers selected for the sample, data were collected from 266 (96 percent).

The design of this research study was, of necessity, ex post facto or nonexperimental. Kerlinger (1973, p. 379) defined ex post facto research as:

> ....systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable. Inferences about relations among variables are made, without direct intervention, from concomitant variation of independent and dependent variables.

Furthermore, Kerlinger contends that most social scientific or educational research problems do not lend themselves to controlled inquiry of the experimental kind.

The data collected were primarily for the purpose of examing interactive relationships pertinent to the hypotheses being tested. Since prior research as previously outlined, had accomplished the task of establishing the relationships between the independent and dependent variables, it was the purpose of this study to probe into the interactive qualities of specified, moderating variables. A three-way factorial design was employed to determine whether significant, interactive relationships existed between the independent variables of decision condition, interest, and expertise, and the dependent variable of teacher job satisfaction. The research design allowed the researcher to reaffirm past research, as well as seek identification of complex interrelationships.

INSTRUMENTATION

The questionnaire used to operationally define the constructs of decision condition, interest, expertise, and job satisfaction consisted of two parts:

Part I: Decision Involvement Analysis questionnaire; and
Part II: Job Satisfaction Survey.

Part I of the questionnaire measured the independent variables of decision condition, interest, and expertise. To measure these variables, four substantive questions regarding 20 decision issues were asked.

1. What is your ACTUAL EXTENT of participation in making this decision?
2. What is your DESIRED EXTENT of participation in making this decision?
3. To what degree are you INTERESTED in this decision?
4. To what degree do you possess EXPERTISE regarding this decision?

The response format for the four decision involvement questions was a forced-choice, four-point Likert scale which required teachers to make either a positive or negative response. The scales, however, allowed respondents to indicate varying degrees of involvement within their positive or negative choices.

Respondents were requested to answer the four questions in relation to each of 20 decision issues used in the study. Nine of the 20 decision issues related to the instructional/technical level, and the remaining 11 related to the schoolwide/managerial level of decision making. The following are samples of the decision issues:

Instructional/Technical Domain Issues
01 Specifying the learning objectives for each unit of instruction
03 Developing procedures for reporting student progress to parents
07 Assigning students to instructional groups within your team or department
Schoolwide/Managerial Domain Issues
02 Determining the administrative and organizational structure of your school
06 Developing inservice programs for teachers in your school
11 Setting and revising the goals of your school

Part II of the questionnaire was Speed's (1979) revised version of Mendenhall's (1977) Job Satisfaction Survey. The survey consisted of 27 items which assessed nine scales (administration/supervision, co-workers, career future, school identification, financial aspects, work conditions, amount of work, pupil-teacher relations, community relations). These scales related to both extrinsic and intrinsic factors of teacher satisfaction. The Job Satisfaction Survey was based on the Index of Organizational Reactions (IOR) (Dunham, Smith, and Blackburn, 1977).

A pilot test was conducted to assess the internal consistency of the questionnaire using Cronbach Alpha reliability coefficients. The reliability coefficients for the four questions in Part I ranged from .83 to .91; and the reliability coefficient for the Job Satisfaction Survey was .88. Therefore, it was concluded that future research based on the questionnaire was appropriate.

DATA ANALYSIS

Prior to testing the hypotheses of the study, a correlational matrix was computed to determine whether significant correlations existed between the independent variables. An extremely high correlation (0.8042) was found to exist between the interest and expertise scales which indicated that the scales were not independent but rather were assessing the same variable. Consequently, the original factorial design was modified to include only the interest scale. This decision, to retain interest and exclude expertise, was based on the assumption that respondents are more capable of assessing their interest than their expertise in the given decision issues.

Second, it was necessary to determine the general decision condition (DC) of all respondents in regard to their actual (A) and desired (D) levels of involvement. SPSS computer programs were used to calculate these conditions (using the formula: $DC = A - D$) for each respondent across all decision issues. The modified decision scores ranged from -45 to +2 (possible range -60 to +60) and had a mean of -15.24. The range of scores indicated that a general state of deprivation existed and that the decision conditions of equilibrium and saturation did not exist in the pure sense defined by Aluto and Belasco (1972). Consequently, the data were trichotomized to form three decision conditions--low (≤ -19), medium ($-19 < m \leq -11$), and high (> 11) involvement.

Third, respondents' interest scores were summated across all decision issues used in the study ($I_{Total} = \sum I_{di}$). The summated interest scores ranged from +40 to +80 (possible range 0 to +80) and had a mean of 61.62. The median (64) was used to dichotomize the range in order to form two levels of interest -- low (≤ 64) and high (> 64).

Based on decision condition and level of interest for all respondents, the hypotheses of the study could be tested. A two-way analysis of variance was used to test the main and interactive effects of the independent variables (decision condition, interest) on the dependent variable (job satisfaction).

FINDINGS

Table 1 presents the results of the analysis and includes the contingency table for mean scores, the omnibus analysis of variance table, and the analysis of variance table for main and interactive effects. The omnibus F-test indicated a significant relationship existed between decision condition and/or interest and overall job satisfaction.

First, the main effect of decision condition x job satisfaction was found to be significant at the .05 level. Therefore, the null hypothesis was rejected and it was concluded that a significant relationship existed between respondents' decision condition (low, medium, or high involvement) and level of job satisfaction.

The analysis was followed by Scheffé post hoc procedures to determine the significance of all pairwise comparisons among means. These procedures indicated a significant relationship existed between all three decision conditions and levels of job satisfaction. Thus, the overall results indicated that respondents in a decision condition of high involvement had a significantly higher level of job satisfaction than those respondents in conditions of medium or low involvement; and respondents in a decision condition of medium involvement had a significantly higher level of job satisfaction than those in a condition of low involvement, but a lower level of job satisfaction than those in a condition of high involvement. These results indicated a linear relationship existed between respondents' decision condition and level of job satisfaction.

Second, the analysis of variance tested the main effect of the independent variable of interest on the dependent variable of overall job satisfaction. In this case, the null hypothesis was not rejected and it was concluded that a significant difference between respondents' mean scores of job satisfaction in relation to respondents' levels of interest in decision issues did not exist.

Finally, the third hypothesis was to determine whether interactive effects existed between the independent variables and the dependent variable. This hypothesis was based on the premise that interest served as a moderating variable between decision condition and level of job satisfaction. The interaction was tested using the two-way analysis of variance and found to be not significant at the .05 level. Therefore, the null hypothesis was not rejected, and it was concluded that an interactive effect did not exist.

CONCLUSIONS AND IMPLICATIONS FOR PRACTICE

Conclusion One: Level of job satisfaction is directly proportional to the decision condition of teachers.

This study addressed the assumed relationship between levels of decision

2 x 3 FACTORIAL ANALYSIS OF VARIANCE

CONTINGENCY TABLE FOR MEAN SCORES

		Decision Condition			
		Low	Medium	High	
Interest	Low	67.81 n=31	72.96 n=52	76.96 n=47	73.18
	High	67.67 n=54	74.31 n=39	80.37 n=35	73.16
		67.72	73.52	78.41	

Independent Variables= Decision Condition, Interest

Dependent Variable = Job Satisfaction

TWO-WAY ANOVA FOR DECISION CONDITION AND INTEREST

GENERAL LINEAR MODELS PROCEDURE

Source	Degrees of Freedom	Sum of Squares	Mean Square	F-Value	PR F
Model (Between)	5	5069.34032293	1013.86806459	10.89*	0.0001
Error (Within)	252	23463.15580110	93.10776112		
Corrected Total	257	28532.49612403			

Source	Degrees of Freedom	Sum of Squares	Mean Square	F-Value	PR F
Interest	1	146.72280497	146.72280497	1.58	0.2105
Discrepancy	2	4755.50012992	2377.7501	25.54*	0.0001
Inter * Discrep	2	126.85755661	63.428775	0.68	0.5069

* Significant at Alpha = .05 level

involvement and job satisfaction. First, the descriptive analysis indicated that the decision conditions of equilibrium and saturation did not exist in a pure sense. The data indicated that a general condition of deprivation existed across all respondents regarding the selected decision issues used in the study. Therefore, decision conditions were redefined as low, medium, and high levels of involvement. These conditions were found to be significantly related to teachers' levels of job satisfaction.

Conclusion Two: The level of job satisfaction is not related to respondents' interest in decision issues.

The second hypothesis of the study was primarily concerned with determining the relationshp between the zone of acceptance concept and job satisfaction. The zone of acceptance, as defined in past educational literature, is derived from a combination of respondents' levels of interest and expertise regarding decision issues. This study was an attempt to measure the zone of acceptance quantitatively. As mentioned earlier, the respondents did not view the variables of interest and expertise as being independent concepts. For statistical purposes the variable of interest was retained and expertise deleted. Analysis of the data revealed, however, that the main effect of interest and job satisfaction was not significant. This finding was not surprising in that the correlational matrix indicated that the correlation between interest and job satisfaction was not significant ($r = -0.0256$, $p = 0.667$). There was, however, a significant negative correlation between respondents' level of interest and their decision condition or level of involvement ($r = -0.2054$, $p = .001$). This correlation indicated that respondents with high levels of interest tended to be deprived in the decision-making process to a greater extent than those with low levels of interest. This relationship offers support to Hoy's supposition that the zone of acceptance is related to the decision-making process.

Conclusion Three: The level of job satisfaction is not related to respondents' decision condition and level of interest in decision issues.

The third hypothesis of the study was concerned with determining the appropriateness of relating the zone of acceptance as an interactive variable with decision condition to teachers' levels of overall job satisfaction. Two major assumptions were the basis of this hypothesis. First, prior research indicated that a significant relationship was assumed to exist between teachers' decision condition and level of job satisfaction. Second, based on the theoretical foundations regarding the zone of acceptance concept, it was assumed that the zone of acceptance, as measured by levels of interest and expertise, was related to respondents' involvement in the decision-making process. The major purpose of this study was to determine if these two assumptions were related. Although each individual assumption was supported, the interactive effect of the independent variables of decision condition and interest on the dependent variable of overall job satisfaction was not significant.

A number of implications which may be of benefit to practicing administators can be derived from the findings and conclusions of this study. First, the results of this study indicate that administrators should attempt to determine the decision condition of their staff members by assessing teachers' actual and desired levels of involvement in the decision-making process. With these determinations in mind, administrators should adjust decision-making processes to avoid teacher deprivation. These adjustments in the decision-making process can be facilited through regular review of decision-making policies. This review should result in efforts which attempt to optimize the involvement-satisfaction relationship.

Particularly, administrators should attempt to increase teacher involvement in the deicision-making process. The following managerial issues were those which appeared to have the greatest discrepancy between actual and desired level of teacher involvement:

1. Determining the administrative and organizational structure of their school.
2. Determining procedures to be used for the evaluation of teachers.
3. Selecting department chairpersons or unit leaders.
4. Evaluating how well your subject depearment or team is operating.
5. Hiring a new faculty member to teach in your subject department or instructional level.

Regarding teachers' levels of interest and expertise in decision issues, administrators should familiarize themselves with the interests of their staff members and objectively assess their levels of expertise. Administrators should then attempt to involve those staff members who possess both high levels of interest and expertise in selected decision issues in the decision-making process.

Finally, administrators should be aware of the psychological importance of teachers' perceptions regarding the discrepancy between their actual and desired levels of involvement. Not only do administrators need to assess teachers' levels of involvement, but they need to reach agreement with teachers regarding perceptions of what teachers' levels of involvement are and ought to be. Consequently, administrators need to be in regular communication with their staff regarding their role in the decision-making process.

The overriding theme of the findings and conclusions of this research study is that administrators should provide, to the greatest extent possible, opportunities for teachers who are affected by a decision and interested in the decision to be involved in making the decision. By so doing, teachers' perceived levels of involvement will increase and high levels of job satisfaction will result.

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AN ETHNOGRAPHIC STUDY OF INFORMAL EDUCATION IN AN ENGLISH MIDDLE SCHOOL

Elinor A. Scheirer
University of North Florida
Jacksonville, Florida

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During the 1960's, American educators became keenly aware of certain educational patterns which were enjoying success in the state-supported infant schools in England and to a lesser extent in their junior schools. Reports by Featherstone (1971) and Silberman (1970) described not only the nature of the educational practices being used but also documented attempts in this country to implement these practices and to adapt them to American elementary-school settings. The enthusiastic response to these ideas demonstrated that American education was experiencing a new movement, subsequently variously labeled the "open classroom," "open education," or the "British Infant School approach." (See, for example, Kohl, 1969; Stephens, 1974; Weber, 1971).

As these practices gained wider publicity and philosophical support for them grew in certain sections of the United States, many groups of American elementary-school teachers and administrators traveled to England during the summers to observe firsthand what was going on in these English schools and to obtain a common frame of reference for curriculum changes which they would be making in their elementary schools back home. They generally traveled to several local education authorities in England known to demonstrate excellent examples of these methods; they observed how several schools in each of these authorities implemented the ideas associated with informal education at various age levels.

During the past ten years the American concept of the "open classroom" has in some respects been modified to include efforts at "individualizing instruction" (e.g., Charles, 1976; Dunn & Dunn, 1972), "personalizing instruction," utilizing "learning centers" (e.g., Davidson, Fountain, Grogan, Short, & Steely, 1976), or, more recently, "teaching students through their individual learning styles" (Dunn & Dunn, 1978). These modifications perhaps reflect the Americanizing of a way of looking at children and the process of educating them so as to be responsive to the unique demands placed on American teachers and administrators. The conventional wisdom of the field, however, consistently acknowledged that the theoretical base for much of what was advocated lay in the teaching methods associated with the British informal schools. It is possible, then, to characterize some of these recent developments in elementary education as adaptations of an idea while still acknowledging its theoretical lineage.

Several problems however, have been associated with the implementation of the British informal education model in the United States. First, efforts at importing the model were often simply a transporting of selected techniques and individual practices from one environment to another. During their hurried visits in infant and junior schools, American educators often overlooked the cultural context and broad educational milieu in which these school practices have arisen in England.

Secondly, the rapid proliferation of these techniques and practices throughout the United States resulted in situations where teachers were implementing teaching methods that were acquired secondhand with little or no personal understanding of the complex variables which supported those methods in England. The methods were often labeled as being "British Informal Education" or "British Infant School" while being two or three times removed from the original concept.

In addition, American teachers who traveled to England often limited their attention to practices in the infant schools. How British teachers extended and adapted the informal teaching techniques to work with older children was rarely described in the reports brought back to the United States. Many educators thus developed the mistaken impression that little informal education was occurring beyond the infant school level.

The discussion in American educational circles of these British educational approaches has, moreover, implied that the practices today are little different than they were in 1970 or even in 1965. Educational philosophy and the development of methodology, however, are no more static in Britain than they are in the United States. If we are to continue to acknowledge certain approaches to elementary education as related to British informal schooling, we also have the obligation to keep informed regarding current educational thinking and practice in Britain.

These problems in interpreting the British implementation of informal education indicate that in-depth study of current educational practices there is necessary if translations to the American scene are to be accurate. A further motivation for such study arises out of the fact that the American experience with the British Infant School approach and its variants has met with mixed success. Discussion of the successes and failures of these attempts has raised questions about the theoretical soundness of the concept of informal education itself and the conditions which might be necessary if it is to be successfully transported from British into American schools. Study of such a British educational setting might clarify the theoretical base and cultural context of informal education and might identify the conditions necessary for successful implementation which can then be clearly communicated to those who will use its methodology in the United States.

The specific purpose of this observation-participation study was to observe and analyze a system of "informal education" as practiced in one state-supported middle school in South Yorkshire, England. For clarity and to avoid association with the techniques and activities of other, often different, educational innovations, the term "informal education" was used to designate the general nature of the educational methodology of the school studied.

The focus was principally upon the underlying patterns of: school organization; the implementing of philosophical views regarding education; and in-service staff training. The research sought to identify factors affecting the success of informal education in this middle-school environment which might be applied in comparable American situations.

Setting

During the academic year of 1979-1980, a six-month observation-participation study was conducted in one state-supported middle school which is identified by British educators as a positive example of the implementation of informal teaching approaches. The modern school serves approximately two hundred sixty students, eight to thirteen years of age, drawn from a "catchment area" which is primarily working-class and middle-class. Roseland Middle School is part of the Doncaster Local Education Authority of South Yorkshire, England; it is located in a smaller neighborhood within the heavily industrial city of Doncaster.

The staff of the school included nine full-time teachers--four men and five women, two part-time teachers--both female, one head teacher--male, a school secretary, and several visiting teachers in specialized content areas. Except for one first-year teacher, all the faculty had more than five years of teaching experience, four with more than ten years.

The school is organized into four "years" which correspond to the four main age groups attending. Classroom instruction is mainly self-contained, although teachers coordinate their work so that similar materials are typically explored in all the classes at the same age level. The head teacher instructs a fourth year mathematics class and monitors work in the activity area, in addition to functioning as the administrator for the school; he also frequently assumes instructional responsibilities when teachers are absent due to illness or visits to other schools.

Much of the instruction is based upon the experiences of students on field trips taken in the local area for a morning or afternoon, or sometimes taken over a two to six-day period in a more distant location. The instructional themes thus vary with these new experiences and generally change every five-week period or "half-term."

The typical school day begins with "workshop," a period of time in which students explore materials and work from the observation of natural and man-made phenomena to the expression of their reactions in paint, pen and ink, pencil, clay, writing, music, or oral presentations. While all the students may be presented with the same stimuli, their responses vary according to the media used and the individual's own expression. Before the morning playtime and coffee break, a daily school-wide assembly is held in the hall; here all students and staff share experiences, from singing songs to class presentations to informal discussions. During the morning play, the teachers gather in the staff room for coffee, while one of them supervises the children playing. Workshop continues after play until dinnertime when a hot meal is served family-style to the teachers and students in their classrooms. An hour break follows in which the children play or voluntarily participate in noontime activities offered by the teachers with talents in specific areas. The afternoon session begins with mathematics; during the playtime break the teachers gather in the staff room for tea while one of their number again supervises the children outside. The last segment of the day includes a quiet reading time, special topics, and an opportunity to finish work begun earlier in the day. The day ends with the teacher reading a story to the class for ten to fifteen minutes.

Methodology

The researcher functioned as a type of resource teacher in the school who had few institutional responsibilities, but who had freedom of access to interact with the subjects, both students and teachers, as desired. The researcher was thus the observer and the participant, although data were regularly discussed with the on-site participants for confirmation and clarification. Frequently, however, the researcher had to adjust her role and modify her activities in keeping with her status as not only a visitor in the school, but also a visitor from another country. While in the beginning the school staff did not have a clear comprehension of the rationale for the study or its design, they gradually came to understand that the research was positively motivated and thus came to provide the informal support so necessary if observation-participation work is to be successful. This trust and growing professional interest in the work have been invaluable.

This observation-participation study owes much of its conceptual basis to the work of Smith and Geoffrey (1968) and Cusik (1973). The "guiding model" or "image of an end in view," as Smith (1979, pp. 330-331) describes it, was inspired by their work and a perceived need for similar efforts in the fields of elementary education and middle-school education as they attempted to incorporate ideas from another culture.

As opposed to other observation-participation studies which assume no focus prior to entering the environment to be studied, this research was guided by several questions: 1) "What are the essential characteristics of British informal education?" 2) "How are these demonstrated on the middle school level?" 3) "How is the school organized to make informal teaching possible in this setting?" 4) "What is the nature of the teaching styles which generate the specific teaching behaviors observed?" 5) "How does this particular approach to education relate to the larger social setting?" Over the six-month period spent in the school, the researcher also responded to the on-going "flow" of school life and pursued involvement in a changing set of activities; such varied exposure provided the broadest perspective possible with regard to the organization and functioning of informal education here. Obviously, though, this also presented a sampling problem of assuring that all relevant domains were observed with integrity over time.

The data gathered took principally the form of direct observations of teacher and student behaviors within a wide range of educational activities related to the program of this particular school. Later, the observational data were summarized and catalogued to produce descriptions both of individual educational "events" and of the daily school routine of teachers and students. What was observed often simultaneously included the drawing of comparisons to practices in American schools, an unavoidable consequence, perhaps, when a researcher from one cultural context operates in another. In addition to the direct data, the field records show a nearly constant stream of analytical and interpretive statements. These drew on behavioral evidence to substantiate theoretical positions advocated by the school or reflected the researcher's efforts at identifying and testing conceptual threads which helped to explain what was happening and why. There was a constant and dynamic "pull" among these kinds of data as the research progressed, with each profoundly affecting subsequent observations, analyses, and interpretations.

An aside seems appropriate here with regard to the "fit" of the methodology to the setting being studied. The British view of schooling practiced at Roseland values description and process as avenues to learning; such procedures are congruent with the use of an observation-participation approach toward research rather than the use of more quantitative research methods.

Results

Through the use of the concept of triangulation, as described by Smith (1979, pp. 344-347), the qualitative data gathered were analyzed and interpreted in order to identify underlying behavioral patterns which characterized this school and staff. Out of this process also came the beginnings of a theory of instruction for informal education in the middle school. This paper will only discuss some of the behavioral patterns which emerged as crucial to the functioning of this unique system.

One cluster of behaviors seems to center on the organization of the school itself. The school population is relatively small by American standards with only two hundred sixty students. While size alone can dramatically affect the quality of teacher-student, student-student, and teacher-teacher interaction, other practices at Roseland Middle School legitimize a way of interacting that can have a marked influence regardless of the size of the institution. All of the teachers relate to all of the students whether or not they are enrolled in their particular classes; this relationship takes the form of commenting on something the child has done that is noteworthy, discussing with him or her consequences of certain behaviors as an approach to management, or sharing an observation of something in the environment that can be turned to instructional advantage.

The attention to detail and the quality of the verbal interactions that accompany the interest in particular children and their behaviors permeate the entire school setting. Such behavior concretely reflects the view held by these British educators that we must observe children closely and then help them carefully observe their world and respond expressively to it in all of its complexity.[1] The modeling and the respect for children that adults clearly demonstrate through this approach to teaching can also foster the growth of children's intellectual and emotional maturity.

The pattern of the school day also lends support to this mode of interaction. The relatively open period of workshop in the morning allows time for teachers and students to analyze tasks together and to evaluate together the work students are doing, often on a one-to-one basis. The rhythm of the daily schedule and of the school year itself, with its balance between intense intellectual activity and sanctioned informal social interaction, gives credence to the school's purposes in developing "whole" individuals. The children become not only adept at observing and thinking about their environment, but also comfortable and confident in relating to others--both peers and adults--within the framework of accepted values in the culture.

The school's rituals support these purposes. Children value their playtime as much as the teachers value the coffee and tea. Assemblies in the morning provide a time for "coming together" when what is learned can be shared, new ideas and experiences can be presented, and time can be enjoyed. The classroom storytime in the late afternoon provides a similar "coming together" at the end of the day which provides closure.

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[1] One description of this approach to teaching can be found in Marsh (1970).

Dinnertime allows teachers and students to interact informally while enjoying a well-presented hot meal. The noontime activities voluntarily offered by the teachers provide further opportunities for informal interaction, as well as a broadening of the students' educational backgrounds.

The curriculum integrates the traditional content areas so that the basic skills of reading, writing, and computation are practiced in the context of studying topics of interest to the students. The school's daily routine focuses on process by consistently encouraging students to observe, describe, analyze, evaluate, and create. Continuity in the curriculum is evident as one observes the increased sophistication and rigor with which teachers and students approach these processes at subsequent class levels.

The rhythm and ritual of the school day, which provide opportunities for regular interaction among staff members, lead to a staff cohesiveness. These informal staff gatherings inevitably result in a spontaneous sharing of personal experiences encountered with children and discussion of the implications of those experiences with regard to teaching in this type of school. The informal interactions thus provide a kind of in-service training for the staff members and a socialization procedure for any new teachers at the school.

Since the head of the school has considerable influence over the selection of new teachers, most on the staff share similar views regarding teaching and learning. The history of having only one or two new teachers on the staff at one time allows for a deliberate, while not explicit, socialization of the new members by the more experienced ones, which also makes a team approach to the education of children more likely. This team approach is likewise apparent in the diversity of skills among the staff members; since they are hired in part based on the unique contribution they can make to the total school effort, staff members view each other cooperatively rather than competitively.

In addition, though, professional development opportunities here are explicit as well. Faculty are encouraged to visit other schools, both formal and informal, and to share their observations upon returning. They facilitate articulation between the first and middle schools by spending time in their "feeder" schools and becoming familiar with the teaching practices used with younger children. At regular faculty meetings, instructional issues are discussed which relate to the effective implementation of the teaching approach supported by the school. The head teacher or other staff member chairs such discussions as evaluating children's art work, improving mathematical problem-solving, and providing children broader experiences in scientific thinking. The intellectual thrust of these meetings reflects a pervasive dedication to observing what children do and to thinking about what they can do. The head teacher informally but systematically encourages this process at other times by raising questions he has been pondering and sharing observations he has made; others on the staff quite naturally do likewise, either intentionally or not.

Conclusions, Recommendations, and Implications of the Study

Several generalizations about teaching practices and school organization in informal educational settings have emerged from analyses of the data. Many of the findings give empirical support to much of the "conventional wisdom" offered by advocates of informal education.

It appears that a significant factor affecting the implementation of informal education may center on limiting the size of the total school population who intimately interact with each other on a daily basis. Organizing schools so that all teachers and students have a reasonable chance of relating to each other allows for the analytical verbal behavior so common in informal education, in addition to encouraging the careful attention to the social and emotional development of the child.

The daily schedule of informal schools needs to permit students and teachers to develop a routine which focuses on process and long-term efforts. While there naturally will be a schedule which is followed, time is also fluid and adjustments may be necessary if learning activities require them. Defining the segments of the school day in terms of broad periods of time for exploration, analysis, and expression--rather than in terms of narrow content areas--seems necessary if the objectives for informal education are to be achieved.

The rituals of the school day which include the assembly, morning and afternoon breaks, dinnertime, and storytime allow for a healthy balance among intellectual activity, informal social interaction, and relaxation. These rituals are as important for teachers as they are for students. The assured regularity of these events also provides a structure which contrasts effectively with the openness of the workshop periods.

Continual staff development, as individuals and as group members, is critical to the success of informal education. Out of the constant discussion and analysis of their experiences in working with children, the teachers can develop their teaching techniques, can become clearer about their educational philosophies, and can seek out new areas for professional growth in a supportive environment. Opportunities in the school for both informal interaction and formal discussion must be regularly offered if such staff development is to become a way of life. The legitimizing of break times and the provision of instructional reasons for coming together regularly add a new dimension to the concept of the faculty meeting.

This model of staff development relies heavily upon the direction provided by the administrator of the school. To function effectively as an instructional leader, he or she must also be seen as a teacher who continually studies the learning of children. The staff must behave as a team who value each other's strengths and who comfortably seek assistance when necessary. Leadership by the head is shared as appropriate with other faculty members who may have more expertise in a given area.

Augmenting internal staff development with opportunities to visit other schools can foster the self-analysis necessary if the curriculum is to improve. Because of these opportunities, faculty become aware of other techniques and solidify their own. Growth in teaching practice results which leads to the increased rigor and sophistication one observes in the intellectual activity at the middle school level.

The results derived from this study suggest immediate and long-range implications for school practices in the United States. Schools with educational commitments and objectives similar to those of British informal schools may find useful the description of characteristics identified here as important to the implementation of informal education in one successful setting. As educators attempt to design informal educational programs that go beyond the simple incorporation of individual activities and practices, they will be able to assess what required conditions already exist and what conditions need to be established for successful full-scale implementation.

This study has primarily yielded a descriptive narrative of how one middle school operates successfully in informal education. Its first-level interpretation of a particular reality, to use Smith's (1979, pp. 349-350) categorization, needs to be augmented by further attempts at theory building based on data drawn from both this setting and corroborated in others. Any evolving theory of instruction for informal education would also require substantiation through analysis of American experiences with the model.

In addition, because the model is innovative in nature, notions about how change is effected will also need to be addressed. Long-range implications of this research will therefore relate to efforts at developing programs of informal education endemic to the American setting and supporting traditional American objectives and values. The results of this study suggest a model for implementing informal education in a variety of environments. The use of change theories to facilitate the process of incorporating practices into existing programs will thereby add another dimension to a model of informal education which has a high probability of success.

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MIDDLE SCHOOL ORGANIZATION, TEACHER JOB SATISFACTION, AND SCHOOL CLIMATE

Patricia Ashton
University of Florida
Gainesville, Fl

Nancy Doda
University of Florida
Gainesville, Fl

Rodman B. Webb
University of Florida
Gainesville, Fl

Stephen Olejnik
University of Florida
Gainesville, Fl

Marilyn McAuliffe
University of Florida
Gainesville, Fl

Statement of Problem

While considerable literature supports the middle school concept as an effective organizational structure for meeting the developmental needs of emerging adolescents (Alexander & George, 1981; Klingele, 1979), there is little research on the relationship between the middle school organizational structure and teacher attitudes, especially job satisfaction. The research that has been reported in this area is conflicting. For example, Beauchamp (1975) found that teacher attitudes improved following a change from a junior high to a middle school organization. In their comparison of middle school and junior high teachers in Grand Rapids, Michigan, Bryan and Erickson (1970) found that middle school teachers had slightly more positive attitudes toward students and teaching; however, Draud (1977) reported mixed results, with middle school teachers having more favorable attitudes toward their status and community support, and junior high teachers having more positive attitudes on issues of curriculum and rapport with teachers. The inconclusive findings on the effect of middle school organization on teacher attitudes indicate a need for further study. Middle school organization with its emphasis on interdisciplinary teams, students' affective development, and an exploratory curriculum introduces significant changes in school structure. In light of the serious problem of teacher dissatisfaction, alienation, and "burnout" prevalent in today's schools, it is important to assess the effects of organizational structure on teachers' attitudes.

A number of recent studies (Brookover, Beady, Flood, Schweitzer, and Wisenbaker, 1979; Rutter, 1979) have noted that school climate is an important factor in student achievement. Brookover, Schweitzer, Schneider, Beady, Flood, and Wisenbaker (1978) suggested that the teacher's present evaluations-expectations of students and the teacher's perception of student academic improvability are particularly salient in the school climate affecting learning. Cohen (1979) reported that school

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organization can affect the degree of intergroup conflict. Thus, it is possible that the middle school organization may have an impact on reducing student conflict, and to the extent that conflict is reduced, teacher job satisfaction should increase. In an attempt to provide evidence of the relationship between teachers' perception of learning climate and student achievement, Ellett and Masters (1977) administered a 118-item questionnaire, the School Survey, to 958 elementary school teachers in Georgia. Of the 14 dimensions of school climate measured by the School Survey, teachers' perceptions of the buildings and facilities, the school's overall educational effectiveness, its evaluation of students and special services, school-community relations, colleague relations, and financial incentives were significantly related to students' achievement test scores, with variance due to school size and school SES removed.

The team organization of the middle school with its concern for student affective development might be influential in improving school climate by increasing teachers' expectations of student learning, reducing student intergroup conflict, and creating more satisfying colleague relationships. The differences in organizational structure in the middle school and junior high are likely to affect teachers' attitudes and satisfaction with their work. The purpose of this report is to compare the attitudes of middle school and junior high teachers toward their job and school climate in the following areas:

1. overall job satisfaction,
2. expectations of students and perceptions of student academic improvement,
3. perceptions of intergroup conflict,
4. colleague relationships.

Sample

Twenty nine teachers from a school having a modern middle school orientation; i.e., multiage grouping, exploratory curriculum, and an interdisciplinary team organization, were compared with twenty teachers from a departmentally organized junior high school. The two schools consisted of approximately 1000 students in grades six through eight and were located in a small (100,000 population) southeastern university town. The student populations of the two schools were comparable in socio-economic and racial distribution. Specifically, the two schools differed on the following dimensions:

1. interdisciplinary team versus department organization. In the middle school, teachers and students are assigned to a team with four or more teachers, representing different subject areas, serving a common group of 120-170 students. Teachers and students on a team have neighboring classrooms and share the same part of the school plant and a similar daily schedule. Teachers frequently plan their instruction on a common theme for which

there is interdisciplinary planning. In addition, there is team decision-making regarding the students they share and their curriculum needs. In the junior high, teachers are organized into subject matter departments. Teachers in the same department meet periodically for curriculum planning. Classrooms are located in proximity by department, for example, all sixth grade history teachers in the same wing, so that teachers who teach the same students are rarely in close proximity.

2. multi-age versus single-age grouping: In the middle school, students remain with the same team of four teachers for three years and are assigned to one of these four teachers as their homeroom teacher and adviser for the duration of three years. All classes for the three years are taken with the same teachers. Thus, in each class there will be students at three age levels equivalent to grades six, seven and eight. In a math class, for example, of 24 students, eight would be in the first year of middle school, eight would be in their second year, and eight in their third year. In the junior high, students are grouped by chronological age and the number of years in the school.

3. flexible, exploratory curriculum versus graded, elective curriculum. In the middle school in addition to their basic academic subjects, students are given the opportunity to select two mini-courses that meet every other day for twelve weeks, thus, giving the students six exploratory classes per year. The class topics from which students are allowed to select are based on a survey of student and teacher interests. Common topics include Creative Writing, Aerodynamics of Flying and Sailing, Sex Education, Greek Mythology, Science Fiction. In the junior high, students are assigned electives on the basis of their grade in school. For example, seventh graders may take Band for half the year, and PE the second half of the year.

4. Adviser-Advisee Program versus Homeroom. In the middle school, multi-age groups of about 25 students are assigned a Teacher-Adviser with whom they meet daily for a 25-minute class. In the junior high, the first five minutes of every first period class is used for an attendance check. This period of time is called homeroom.

Procedures

Teachers at the two schools were asked to spend two hours completing a questionnaire designed to investigate their perceptions of teaching. They were paid $10 each for their contribution to the study. Approximately half of the teachers at each of the two schools completed the questionnaire. Since the return rate of the questionnaire was similar at the two schools, it was assumed that the samples were probably equivalent; however, generalizations are limited in that teacher participation was voluntary.

The teachers were asked to report on the stress and satisfaction they felt toward teaching. They also completed the Brookover, Gigliotti, Henderson, and Schneider (1973) measures of Teacher Present Evaluations and Expectations for High School Completion and Teacher-Student Commitment to Improve,as well as a measure of student intergroup conflict (Cohen, 1979), and a measure of colleague relationships (Ellett and Masters, 1977). Likert-type items were used to assess these attitudes. In addition, the role perceptions of the teachers at the two schools were explored by asking the teachers to respond to the following item, adapted from Fox, Jung, Schmuck, Van Egmond, and Ritus (1977):

> All of us have certain things about our own role performance which we think are important. There are ten numbered blanks on the page below. In the blanks, please write ten adjectives or short descriptive phrases, each referring to the simple statement, "As a middle school teacher, I do the following things."
>
> Answer as if you were giving the answers to yourself, not to somebody else. Write the answers in the order that they occur to you. We are interested in both positive and negative aspects. Don't worry about logic but try to be as clear as possible. Write each descriptive word or phrase as rapidly as possible. Your first impressions are good enough.

Results

School means for the teachers' responses to the questionnaire items are presented in Table 1. A comparison of the distribution of responses from the two schools, using chi-square analysis,indicated that the middle school teachers considered teaching more important to them than the junior high teachers ($x^2 = 6.14$, $p < .05$) and were more likely to choose teaching again, if they had a chance to do it again ($x^2 = 7.69$, $p < .01$). The difference in teacher stress reported at the schools was not significant ($x^2 = 3.65$, $p < .60$).

Since the responses for some of the items provided more than simple nominal data and were at least ordinal in nature, the more powerful Wilcoxin test was used to examine differences in distribution of teacher response patterns for those items. Results of this analysis indicate that the middle school teachers were more satisfied with teaching than teachers at the junior high ($x^2 = 3.38$, $p < .05$).

Coefficient alpha calculated for the Brookover, et al. (1973), Cohen (1979), and School Survey (Ellett and Masters, 1977) school climate items was .61, .84, and .59, respectively. It was concluded that these coefficients were sufficiently high to warrant use of a total score for each. One-way analysis of variance indicated that middle school teachers had higher expectations of academic success for their students ($F = 6.18$, $p < .05$). Teachers at the middle school reported more difficulties with colleague relations than did teachers at the junior high ($F = 8.24$, $p < .01$). No significant differences in student intergroup conflict (Cohen, 1979) were detected.

Table 1

School Means and Standard Deviations for Questionnaire Data

Item		N	Mean	SD	Min.	Max.
How stressful is teaching?[1]	Middle School	29	3.34	1.01	1	5
	Junior High	20	3.10	1.12	0	5
How satisfied are you with teaching?[2]	Middle School	29	2.21	.82	1	4
	Junior High	20	2.95	1.19	1	5
How important is teaching for you?[3]	Middle School	29	1.52	.51	1	2
	Junior High	20	1.90	.55	1	3
Teacher expectations[4]	Middle School	29	23.86	4.10	15	35
	Junior High	20	26.65	3.47	20	33
Intergroup conflict[5]	Middle School	29	41.52	7.08	17	51
	Junior High	20	43.65	8.04	26	56
Colleague relations[6]	Middle School	29	14.79	2.51	10	18
	Junior High	20	16.75	2.07	11	18

[1] The higher the score, the greater the stress.

[2] The lower the score , the greater the satisfaction.

[3] The lower the number, the more important teaching is to the teacher.

[4] The lower the score, the higher the teacher expectation for student success.

[5] The higher the score, the greater the school cultural conflict.

[6] Higher score indicates better colleague relations.

Teachers' responses to the role perception question, "As a middle school teacher I do the following things:" were sorted and categorized. Table 2 lists the categories teachers used in responding to the item. The responses distinguishing the two schools reflect the divergent emphasis of the two schools. Teachers at the middle school clearly place a greater emphasis on interpersonal interaction with students; e.g., 41% of the middle school teachers mentioned "establishing personal relationships with students," while this response did not occur at all among teachers at the junior high. Twenty-four per cent of the middle school teachers cited, "act as a role model," while this response never occurred in the responses of the junior high teachers. Care was mentioned by 28% of the middle school teachers and by 15% of the teachers at the junior high. In contrast, 30% of the junior high teachers responded "help students learn subject matter" in comparison with only 10% of the middle school teachers. Another interesting difference was that only 7% of the middle school teachers mentioned "adapt teaching to students' ability level" compared to 35% of the junior high teachers. This finding is intriguing, because structural differences in the schools, specifically, multi-age grouping at the middle school, suggest that adapting teaching to ability level would be a more pervasive problem at the middle school, yet teachers there are apparently not as concerned with this responsibility as teachers at the junior high. Of interest also in light of the greater job satisfaction at the middle school is the greater percentage (31%) of teachers who responded that they "work hard" in comparison with only 5% of the junior high teachers.

Discussion

The middle school teachers considered teaching to be more important to them than did the junior high teachers. The middle school teachers also reported that they were more satisfied with teaching and were more likely to choose teaching as a career, if they had a chance to do it again. In addition, the middle school teachers had higher expectations of academic success for their students. While a selection bias or some factor other than school structure, *per se*, may account for these positive results, they warrant further study.

Teachers' responses to the question of their perceptions of their role demonstrate dramatically that the middle school teachers perceive their teaching responsibilities differently than the junior high teachers. Clearly, the middle school teachers are more concerned with their students' affective development than the junior high teachers. The middle school teachers' report of greater satisfaction in teaching than the junior high teachers may be related to the difference in perception of their teaching role. Jackson (1968) and Lortie (1975) among others have noted that teachers tend to derive their rewards and satisfactions in teaching from their role in the total development of the individual student. The middle school emphasis on affective goals and long-term relationships of students and teachers over a 3-year span may give a greater sense of effectiveness

Table 2

Teacher Role Perception Categories

Categories	Middle School #	Middle School %	Junior High #	Junior High %	Total #	Total %
Manage Classroom	14	48	11	38	25	51
Experience Positive affect	14	48	8	40	22	45
Experience Negative affect	12	41	9	45	21	43
Motivate	10	34	9	45	19	39
Plan	11	38	7	35	18	38
Help students emotionally	12	41	6	30	18	36
Listen	12	41	5	25	17	35
Instruct	9	31	7	35	16	33
Grade (Evaluate)	9	31	4	20	13	27
Work with colleagues	8	28	4	20	12	24
Understand	8	28	4	20	12	24
Establish personal relationship with students	12	41	0	0	12	24
Care	8	28	3	15	11	22
Work with parents	5	17	6	30	11	22
Work hard	9	31	1	5	10	20
Help students learn subject matter	2	10	6	30	8	17
Adapt teaching to students' ability	2	7	7	35	9	18
Talk	4	14	3	15	7	14
Teach responsibility	4	14	3	15	7	14
Keep records	3	10	4	20	7	14
Act as a role model	7	24	0	0	7	14
Individualize	3	10	3	15	6	12
Help students learn social skills	2	6	4	20	6	12

by virtue of their being able to observe their contribution to a students' development over an extended period. The rapid and significant changes that students undergo during the middle school years may intensify teachers' feelings of effectiveness, when teachers are given the opportunity to participate in this growth from the students' entrance into middle school until their exit three years later.

Experimental research that investigates the potential impact of prolonged exposure of teacher and student over more than the year of traditional teacher-student assignment might reveal that teachers' job satisfaction would increase as a function of being able to see students' long-term growth. With a longer association, teachers may become more assured that they are indeed having an impact on their students' lives.

The finding of difficult collegial relations among the middle school teachers was not unexpected. Draud (1977) reported a similar finding in his comparison of middle and junior high school teachers. Brookover and Lezotte (1977) noted that conflict among school staff may be indicative of a creative, committed group of professionals. In their study of team organization, Cohen, Bredo, and Duckworth (1976) concluded that the way teams work together influences job satisfaction. While, in most cases, teaming led to higher frequency of teacher interaction and job satisfaction; this was not true of all teams. They attributed differences in team satisfaction to the nature of team teaching tasks and the quality of teacher interactions on the team. Results of a study by Arikado and Musella (1973) suggest an intriguing hypothesis that may be pertinent to the findings of this study. They found that teachers in leaderless teams reported greater job satisfaction than teams with formal leaders. Tentative evidence derived from interviews with teachers in this study suggests that the status of team leader may create dissatisfaction among team teachers. Further work is needed to explore the processes that are conducive to conflict resolution and facilitative team relationships.

In conclusion, the results of this study suggest that the middle school with its team organization and affective orientation may have potential for improving teacher job satisfaction. In light of the transition to middle schools that many junior high schools are currently undergoing, it would be advisable to conduct comparative studies of teacher attitudes prior to and following such transitions to determine if the positive results obtained in this study are consistent outcomes of a middle school organization. In the context of such research, it would be useful to design quasi-experimental transition studies that could examine the impact of specific components of middle school organization on specific aspects of job satisfaction in order to increase our understanding of the processes that contribute to positive school climate.

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CONGRUENCE OF PARENTAL BEHAVIOR AS PERCEIVED BY PARENTS AND THEIR MIDDLE SCHOOL CHILDREN

Doris B. Matthews
South Carolina State College
Orangeburg, South Carolina

Jimmy L. Quinn
South Carolina State College
Orangeburg, South Carolina

Roberts Burns wrote "O, wad some Power the giftie gie us to see oursels as ithers see us!" Popular television game shows have exploited the mass interest in the extent to which individuals or groups of people agree on a wide variety of topics. To their own surprise, the authors find themselves seeking to interpret patterns of consonance and dissonance between the parenting behavior which parents report and those which their middle school children expect them to report. While hardly as entertaining as TV's Match Game or Family Feud, the report of the preliminary work on this topic should prove interesting to teachers and school administrators, combining, as it does, an element of mass appeal and one of sharply defined specificity to the interest of educators who interact with parents.

Related Literature

The literature of child development is voluminous and, in a measure, self-contradictory. Thus, any attempt to select a set of relevant parenting behaviors for study is inevitably controversial. Further complicating the selection, in order to sample usefully from among those possibly relevant behaviors, some attention must be directed to the age of the child toward whom these behaviors are to be directed. Clearly, where the parent's attitude regarding appropriate telephone usage may be important for the preadolescent, such an attitude bears less significantly on the infant. Because of projected needs in their own subsequent research and consonant with the senior author's recent research interest, the authors restricted the total parent population to include only parents of preadolescent children. Such children frequently attend middle schools, housing any or all grades between fifth and eighth grades. In this paper, the terms "preadolescents" and "middle school pupils" are used interchangeably.

Various books involving recent conceptualizations of the role of middle schools and the nature of the middle school student provided valuable information which suggested several parent behaviors which should be observed (Stamm & Nissman, 1979; Curtis & Bidwell, 1977; Klingele, 1979; Kindred, et al., 1976; Alexander, et al., 1969; Disque, 1973; and Sale, 1979). Books on parenting provided others (Callahan, 1973; Wood, et al., 1978; and Bigner, 1979). A final set of parent behaviors was drawn from the senior author's experience in helping parents reduce and manage the stress of surviving a preadolescent's development. The initial set of behaviors selected for observation, then, were organized into the following three categories: (1) behaviors which reflect parental awareness of principles of preadolescent growth and development, (2) behaviors which relate to the skill with which a parent communicates, and (3) behaviors used to manage the stress which can accompany the rearing of a preadolescent. An instrument containing items for collecting data on each of these behaviors as self-reported by parents was devised and tested for stability on a convenience sample of 30 middle school

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parents. Seven unstable items were deleted, leaving 41 items for 41 parental behaviors of interest to the researchers (Matthews & Quinn, 1981). The instrument which resulted from this work is the *Checklist for Parents of Preadolescent Children* (CPPC). A copy is presented in the appendix to this paper.

The Research Problems

The problems to be investigated in the present paper are as follows: Given a set of 41 parenting behaviors:

1. do parents of middle school children report that these behaviors characterize themselves *often*, *sometimes*, or *seldom*?
2. do middle school children expect their parents to report these behaviors as their own *often*, *sometimes*, or *seldom*?
3. do mothers and fathers within a family report similar patterns of parenting behavior?
4. do mothers and middle school children agree on the report of the mother's parenting behavior?
5. do fathers and middle school children agree on the report of the father's parenting behavior?
6. are the patterns of agreement in 4 and 5, above, related to the sex of the middle school child?

Though of interest in themselves, successful solutions to these research problems pave the way for studies that attempt consensus of perception of parenting behavior between parent and child and, beyond consensus, studies on such issues as: (1) the degree to which these parenting behaviors may be modified, and (2) the effects of modification of behavior and perceptual consensus on school success of middle school children.

The Sample

The sample of middle school children was drawn by convenience from Grades 6-8 of Felton Laboratory School, an element of the School of Education, South Carolina State College. The college is an historically black public institution at Orangeburg, South Carolina. Each middle school student in Felton completed the CPPC twice, except for children who come from single parent families, once as they expected their mothers to respond and once as they expected their fathers to respond. Students completed a total of 196 usable survey questionnaires, 104 for their mothers and 92 for their fathers. Respondents took additional questionnaires home for both parents to complete and return. Mothers returned 50 usable questionnaires and fathers returned 37. No follow-up was made to improve parent response rates (48 percent and 40 percent, respectively) because the authors regarded the research as preliminary to more generalizable work in the future. They saw little reason to squander time to no greater end than improving generalizability to Felton Laboratory School.

The sample of students was reduced prior to analysis by deleting all student responses which were unaccompanied by a corresponding parent response.

Research Design

The four groups from which responses were elicited were fathers and mothers of middle school children and male and female middle school students. In some comparisons, males and females in the middle school were combined into a single group called "all children."

Each item on the CPPC had three response categories: often, sometimes, and seldom. Responses were transformed to an ordinal scale such that responses of often were transformed to scores of 1, sometimes to 2, and seldom to 3. Such a transformation is justified since the classification of a behavior as characteristic of oneself often, sometimes, or seldom may be interpreted without ambiguity as steps along a stimulus dimension, even though the bolder assertion that the steps comprise an interval scale may not be justified.

The median responses for all identifiable subgroups were computed for each item on the CPPC. These indices of central tendency provide answers to the research questions posed as Problems 1 and 2. The medians are tabulated in the analysis section of this report.

In order to investigate Problems 3 through 6, responses from appropriate pairs of respondents (mothers and fathers, mothers and daughters, etc.) were studied for association using the Spearman rank-order correlation coefficient (r_s). The Spearman coefficient operationalizes the linear association between ordinal variables under the constraint that the ranks are treated as uniformly distributed interval scores.

In a study where 41 behaviors are studied and where the sample is small (with the number of usable pairs between 13 and 50), considerable uncertainty arises about the amount of association one demands within a sample before concluding that some true association exists within the population of such pairs. Normally, one sets a level of significance and asserts an association when the probability is less than that level of significance that the observed association originates entirely from sampling error. The level of significance necessary to assure that fewer than five wrong assertions is claimed for every one hundred tests is extremely small. Such a tiny level of significance renders the assertion of any association almost impossible. In statistical language, the protection of the family-wise Type I error rate at 0.05 virtually destroys the power of the test of association. To circumvent the trade-off between Type I errors (false assertions that a true association exists) and statistical power, studies of the present type should use very large samples, well beyond the financial resources of the present research. In order to use some rational metric for identifying a probable true association, the present researchers tested each measure of association for significance at the 0.05 level. Though the overall family-wise error rate undoubtedly is disturbingly high, the increase in statistical power persuaded the researchers to use the less-convincing but more attainable standard for identification of behaviors which are associated between groups of respondents. The most immediate consequence of the decision is that the results of tests of association reported in the analysis section must be regarded as indicative and illustrative but not convincing in the normal statistical sense of that word. Specifically, the tests for association were made on each of the 41 items of the CPPC for each of the 7 following pairs: (1) mothers and fathers, (2) mothers and daughters, (3) mothers and sons, (4) mothers and all children, (5) fathers and daughters, (6) fathers and sons, and (7) fathers and all children.

Analysis of Data

Table 1 reports the median answer of each of eight groups of respondents. Recall that a response of 1 indicates that the group considered the behavior to characterize itself often, 2 means sometimes, and 3 means seldom. Considered in terms of groupwise perception of parental behavior, the general impression of Table 1 is one of congruity of perception among groups. Several items were marked as often characterizing parental behavior (a median response of 1). The six items showing greatest agreement on the often end of the dimension are these:

Item 2: I discuss stories from my childhood with my child.

Item 3: I touch or hug my child or show other signs of physical affection.

Item 38: I read newspapers, magazines, and books in the presence of my child.

Some items were marked by most groups at the other end of the dimension, at seldom. The 7 items in closest agreement at this extreme end of the scale are these:

Item 10: I am reluctant to give my child compliments.

Item 14: I use physical punishment to shape my child's behavior.

Item 15: I feel betrayed when my child keeps secrets from me.

Item 20: I criticize my child's excessive concern with his/her physical appearance.

Item 24: I discourage my child from inviting friends to the house.

Item 31: I discourage my child from seeking work such as babysitting, cutting grass, or raking a yard.

TABLE 1

MEDIAN RESPONSES OF EIGHT GROUPS OF PARTICIPANTS TO 41 ITEMS ON THE CPPC

Item	F[a]	M[b]	M(D)[c]	M(S)[d]	M(AC)[e]	F(D)[f]	F(S)[g]	F(AC)[h]
1	2	2	2	2	2	2	2	2
2	1	2	1	1	1	1.5	1	1
3	2	1	1	1	1	1	1	1
4	2	2	2	2	2	2	2	2
5	3	2	2	2	2	3	3	3
6	2	2	2	2	2	2	2	2
7	3	1	2	2	2	2	2	2
8	2	2	2	1	2	1	1	1
9	2	2	2	2	2	2	2	2
10	2	2	3	3	3	3	3	3
11	2	2	2	2	2	2	2	2
12	1	2	1	1	1	1	1	1
13	1	1	1	1	1	1	1	1
14	2	3	3	3	3	3	3	3
15	3	3	3	3	3	2	3	3
16	2	2	3	3	3	2.5	3	3
17	3	2	2	3	3	2.5	3	3
18	3	2	2	2	2	2	2	2
19	2	3	2	2	2	2	2	2
20	3	2	3	3	3	2.5	3	3
21	2	2	2	2	2	2	2	2
22	2	2	2	2	2	2	1	2
23	2	2	2	2	2	3	2	2
24	3	3	3	3	3	3	3	3
25	2	1	2	1	1	2	1	2
26	2	2	2	2	2	2.5	2	2
27	3	2	2	2	2	2	2	2
28	2	3	2	1	2	2	1	2
29	2	3	3	2	3	2	1	2
30	2	2	2	2	2	3	2	2
31	3	3	3	3	3	3	3	3
32	3	2	1	1	1	1	1	1
33	3	2	2	2	2	2.5	2	2
34	1	1	1	1	1	1	1	1
35	2	2	3	3	3	3	3	3
36	2	2	2	2	2	2	2	2
37	2	2	2	2	2	2	2	2
38	1	1	1	1	1	1	1	1
39	2	2	2	2	2	2	2	2
40	2	2	2	2	2	2	2	2
41	2	2	2	2	2	2	1	2

Please see the following page for interpretation of column headings.

TABLE 1-Continued

[a]Fathers' perception of their own behavior	(N = 35)
[b]Mothers' perception of their own behavior	(N = 49)
[c]Mothers' behavior as perceived by daughters	(N = 31)
[d]Mothers' behavior as perceived by sons	(N = 18)
[e]Mothers' behavior as perceived by all children	(N = 49)
[f]Fathers' behavior as perceived by daughters	(N = 22)
[g]Fathers' behavior as perceived by sons	(N = 13)
[h]Fathers' behavior as perceived by all children	(N = 35)

Item 35: I discuss my dissatisfactions with the school in the presence of my child.

In order to lend perspectives to these findings, some comments on the social setting from which Felton Laboratory School draws its students should be useful. Many Felton families hold one or more positions on the staff and faculty of South Carolina State College. As such, their levels of education and awareness of child development and appropriate parenting behavior must be regarded as abnormally high. The finding, then, that parents responded as they did on the thirteen items is hardly surprising. Of greater interest is the finding that their children agreed with the parents' statements, as a group, providing a convincing assurance that, in the responding Felton families, knowledge of parenting has been translated into desirable practice.

Among the 41 items of the CPPC, only three items were found which elicited substantial disagreement among the groups. Item 28 is such an item: I accept the fact that my child is now more awkward than before preadolescence. When sons predicted both fathers' and mothers' responses to this item, the median response was "often." Mothers believed that they accepted their child's awkwardness "seldom," and fathers said they were tolerant "sometimes." Girls and fathers agreed when they judged parental acceptance of awkwardness to be a "sometimes" thing.

Another item answered variously among the groups is Item 29: I allow my child's participation in unsupervised activities. When sons predicted their fathers' responses, the typical answer was "often." When girls predicted their mothers' responses, "seldom" was the typical response. Curiously, in a society bent on reducing sexism, the mothers in the sample regarded themselves as more restrictive (the median response was "seldom") than fathers (their median response was "sometimes").

The item on which parents and children show the greatest disagreement is Item 32: I accept the idealistic expectations my child holds for me and try to live up to them as much as possible. Far from casting themselves in an idealistic role, parents believed this item uncharacteristic of themselves (fathers' median was "seldom" and mothers' median was "sometimes"). On the other hand, these parents' children saw no clay on their parents' feet; they believed mother and father stretched to achieve their children's ideals (median response was "often").

In addition to the groupwise typical answers to items on the CPPC, the researchers also were interested in the associations revealed between responses from both parents and from each parent and his or her middle school child.[1] The sample's behavior on the items which were identified as reflecting agreement in at least one pair of respondent groups is summarized in Table 2.

For fully 14 of the items on the CPPC, no two groups agreed with sufficient strength to meet the researchers' selection criterion, a Spearman rank-order correlation coefficient which, considered singly, was significant statistically at the 0.05 level. These items on which patterns of response never were sufficiently alike to persuade the researchers that a true association existed between any two groups of respondents were these:

Item 1: I consider my child's opinion before making a family decision. (The median response for all groups was "sometimes" but the groups did not agree pairwise.)

Item 2: I discuss stories from my childhood with my child. (Most groups agreed that a typical response was "often" to "sometimes" but the groups did not concur when examined a pair at a time.)

Item 4: I encourage my child to discover and appreciate the family's historical roots. (Again, the median response for every group was "sometimes" but, pairwise, the responses seemed to vary randomly.)

Item 6: I provide several choices rather than decide an issue for my child. (Consensus was observed among the groups that a typical response was "sometimes" but the pairs of responses did not show a credible association.)

Item 13: I insist that my child eat fruits and vegetables. (Every group had the same typical response: "often," but association did not characterize the sets of paired responses.)

Item 18: I pursue independent activities other than work away from the family. (Though a typical father's response, "seldom," differed from every other group's typical answer, "sometimes," pairs of respondents revealed no strong tendency to agree.)

Item 19: I remain calm when my child loses his/her temper. (The group of mothers said that they remained calm "seldom," while every other group said "sometimes." Considered a pair at a time, however, the association was weak.)

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[1] Further details of the results of the analysis may be examined upon request of the authors.

TABLE 2

SUMMARY REPORT OF SPEARMAN CORRELATION COEFFICIENTS BETWEEN GROUPS WHICH WERE IDENTIFIED AS ASSOCIATED BASED UPON THEIR RESPONSES TO ITEMS ON THE CPPC

	Mothers and				Fathers and		
Item	Fathers	Daughters	Sons	All Children	Daughters	Sons	All Children
3	0.37*	-0.09	0.23	0.03	0.30	0.32	0.31
5	0.21	0.52*	0.51*	0.52*	-0.25	0.52	0.13
7	-0.08	0.37	0.34	0.33*	0.17	0.35	0.44*
8	0.39*	0.53*	0.40	0.48*	0.46	0.30	0.40*
9	0.04	-0.18	-0.17	-0.19	0.27	0.60*	0.38*
10	0.39*	0.04	-0.20	0.00	0.00	-0.56*	-0.20
11	0.29	0.45*	0.21	0.36*	0.02	0.05	0.05
12	0.55*	0.04	0.35	0.29	0.32	0.64*	0.44
14	0.36*	0.01	0.64*	0.27	-0.25	0.14	-0.11
15	0.34*	0.02	0.54*	0.19	-0.21	0.85*	0.18
16	0.36*	-0.04	-0.20	-0.09	-0.44*	0.47	-0.15
17	0.33*	0.12	-0.01	0.17	0.16	0.75*	0.35*
21	0.79*	0.02	0.57*	0.18	-0.02	0.41	0.14
22	0.31	0.16	0.05	0.11	0.46*	-0.44	0.15
23	0.35*	0.02	0.03	0.03	0.27	0.68*	0.44*
26	0.53*	0.16	0.12	0.17	0.05	0.45	0.10
27	0.53*	0.46*	0.40	0.44*	0.44*	0.70*	0.53*
29	0.28	0.05	-0.31	0.10	0.51*	-0.30	0.13
30	0.43*	0.10	0.20	0.15	0.12	0.57*	0.25
31	0.38*	0.17	-0.12	0.19	-0.25	0.17	-0.09
33	0.21	0.47*	0.11	0.36	-0.23	0.61*	0.23
34	-0.15	0.00	0.00	0.06	0.46*	-0.23	0.12
35	0.37*	0.04	0.24	0.11	0.07	-0.01	0.03
36	0.29	0.34	0.34	0.30*	0.00	0.22	0.04
39	0.48*	0.17	0.15	0.17	-0.01	-0.49	-0.16
40	0.46*	0.35*	0.65*	0.43*	-0.02	0.12	0.05
41	0.14	0.01	-0.13	0.04	-0.46*	-0.03	-0.29
Modal N	34	30	16	49	22	13	36

*indicates a criterion level of association

Item 20: I criticize my child's excessive concern with his/her physical appearance. (Generally, the groups felt this behavior characterized parental behavior "seldom." Examined pairwise, the association was weak.)

Item 24: I discourage my child from inviting friends to the house. (All groups concurred that this behavior reflected the parents' position "seldom," but, again, pairs of responses were associated weakly.)

Item 25: I permit the telephone to be used for socializing. (Considered groupwise, mothers and sons said "often," while fathers and daughters said "sometimes." Considered pairwise, the association between responses of examined groups was weak.)

Item 28: I accept the fact that my child is now more awkward than before preadolescence. (The groupwise lack of agreement on this item has been reported earlier. Pairwise, the agreement was weak, as well.)

Item 32: I accept the idealistic expectations my child holds for me and try to live up to them as much as possible. (This item's lack of groupwise consensus has been discussed already. Pairwise, the groups failed to demonstrate association on the item.)

Item 37: I consider my child's ideas to be as good as mine. (Among groups, all agree that "sometimes" is a typical response. Considered pairwise, the agreement disappears.)

Item 38: I read newspapers, magazines, and books in the presence of my child. (Despite perfect agreement among groups that "often" is a typical response, association between identified pairs of respondents is weak.)

For every other item on the CPPC, agreement was observed at the researchers' criterion for at least one pair of groups. As one might expect, no pair of groups concurred on more items than mothers and fathers (17 items showed criterion levels of association). Next came fathers and sons with 9 items associated at criterion levels, a finding which is underscored by the small number of pairs (only 13, lowest for any pair of groups), since the criterion level for selection increases dramatically as the number of pairs decreases. The numerical values of the association index for selected items was greatest for these two groups.

The following section will introduce each item for the CPPC which is reported in Table 2. Following the items, the observed associations will be discussed briefly.

Item 3: I touch or hug my child or show other signs of physical affection. (Except for fathers, all groups regarded "often" as the typical response. Fathers tended to answer "sometimes." Considered pairwise, only the mother-father pairs met criterion levels of association, though the other groups were associated almost at the same level except for mother-daughter pairs in which no association was observed.)

Item 5: I engage in frank discussion of sexual issues with my child. (Considered groupwise, the typical response lay between "sometimes and "seldom." Mother-daughter and mother-son pairs achieved criterion levels of association. At the same level where father-son pairs. Fathers and daughters show a weak tendency to disagree [r_s = .0.25].)

Item 7: I discuss with my child the changes occurring in his/her body. (Within the groups, fathers tended to answer "seldom," mothers tended to answer "often" and children tended to respond "sometimes." Among the paired responses, while mother-all children pairs and father-all children pairs achieved criterion levels of association, the father-daughter association was rather weak. No association was observed between mothers and fathers.)

Item 8: I buy cooperative games to have around the home. (Typical responses within groups vary from "often" to "sometimes," with fathers being perceived by children as more likely to buy games than mothers. While only father-mother, mother-son, mother-children and father-children pairs achieved criterion levels of association, all groups seem associated quite similarly.)

Item 9: I seek my child's suggestions on family decisions. (Every group typically answered "sometimes" to the question, but, among the paired responses, only fathers and sons were associated at criterion levels of association. Apparently fathers and sons perceive each other much more congruently than any other pair of groups.)

Item 10: I am reluctant to give my child compliments. (Typically, parents tended to answer "sometimes" to this item while children tended to perceive this behavior as "seldom" characteristic of their parents. Examined pairwise, mothers and fathers tend to agree in their responses, but fathers and sons show a marked tendency to disagree. Among these 13 pairs, fathers who believe themselves complimentary have sons who tend to disagree.)

Item 11: I allow my child to cook and serve some meals. (The typical answer in every group was "sometimes." Only mother-daughter pairs achieved criterion levels of association, however.)

Item 12: I encourage my child to participate in individual and group sports. (The typical response from mothers was "sometimes" but every other group tended to answer "often." Those pairs achieving criterion levels of association were mother-father and father-son pairs. Mother-daughter pairs showed almost no association.)

Item 14: I use physical punishment to shape my child's behavior. (Typically, fathers answered "sometimes" and other groups answered "seldom." Mother-father and mother-son pairs achieved criterion levels of association. Father-daughter pairs revealed a weak tendency to disagree. Responses from mothers and daughters showed no association at all.)

Item 15: I feel betrayed when my child keeps secrets from me. (Daughters typically answered this item "sometimes" when predicting their fathers' behavior. Considered in terms of paired responses, mothers and fathers, mothers and sons, and fathers and sons achieved criterion levels of association. Daughters showed no tendency to predict their mothers' responses and a slight tendency to predict their fathers' responses falsely.)

Item 16: I guide my child away from tasks that are too difficult. (The typical within-group response to this item lay between "sometimes" and "seldom." While only father-mother pairs showed criterion levels of association, a tendency to agree was observed between fathers and sons. Daughters and fathers disagreed significantly, while daughters revealed no ability to predict their mothers' responses. A quite weak tendency to disagree was observed between mothers and sons.)

Item 17: I become critical when my child laughs, giggles, or talks incessantly with a friend. (Typical responses within groups ranged from "sometimes" to "seldom." Only mother-father and father-son pairs showed criterion levels of association.)

Item 21: I am critical of my child's behavior. (The typical answer for every group was "sometimes." Mothers and fathers agreed more closely on this item than on any other. Mothers and sons also achieved criterion levels of association. Fathers and sons were associated but not significantly. Daughters showed no tendency to predict their parents' behavior on the item.)

Item 22: I understand why it is necessary for my child to buy shirts, jeans, blouses, etc., like his/her friends even though other brands are cheaper. (All groups answered "sometimes" to this item except sons predicting fathers who typically answered "often." Only fathers and daughters achieved criterion levels of association even though mothers and fathers tended somewhat to agree. Sons and fathers disagreed in the sample, but not significantly.)

Item 23: My child's restlessness disturbs me. (Though daughters predicted that their fathers typically would answer "seldom," all other groups tended to answer the item "sometimes." Mothers and fathers and fathers and sons achieved criterion levels of agreement. Daughters show a weak tendency to predict their fathers correctly, but neither sons nor daughters were adept at predicting their mothers' responses.)

Item 26: I require my child to go on a family outing even though he/she prefers to stay at home. (Though all groups agreed that a typical answer was "sometimes," only fathers and mothers achieved criterion levels of association. Sons showed some tendency to predict their fathers' responses, but mothers were unpredictable by either sons or daughters and daughters failed to predict their fathers' responses.)

Item 27: I control the manner in which my child spends money. (Though fathers typically answered "seldom," all other groups tended to answer "sometimes." Except for the moderate association between mothers' and sons' responses, every other pair of groups achieved criterion levels of association. Apparently the control of money by parents is perceived congruently by parents and their children. No other item showed such consistency across pairs of groups.)

Item 29: I allow my child's participation in unsupervised activities. (The wide variety of typical responses within groups for this item has been reported already. Only when daughters predict fathers is the observed association significant. Sons show a weak tendency to predict both parents' responses falsely.)

Item 30: I encourage my child to visit a number of work places to become acquainted with various occupations. (Though daughters predicted that their fathers typically would answer this item "seldom," all other groups tended to answer "sometimes." Only mother-father and father-son pairs achieved criterion levels of association.)

Item 31: I discourage my child from seeking such work as babysitting, cutting grass, or raking a yard. (With perfect agreement, the typical within-group response was "seldom." The work ethic appears to thrive among the Felton families. However, considered pairwise, only fathers and mothers responded with criterion levels of association.)

Item 33: I talk to my child about sex and the responsibility associated with it. (Typically, fathers answered "seldom" and daughters predicted that their fathers typically would respond between "sometimes" and "seldom." All other groups tended to answer "sometimes." Daughters tended to predict their mothers' answers and sons their fathers' answers at the criterion level of agreement. Daughters show a weak tendency to predict their fathers' answers falsely.)

Item 34: I recognize special days in the life of my child. (Although every group tended to answer "often" to this item, only one pair of groups responded at criterion levels of agreement. Daughters tended to predict their fathers' responses correctly. Sons showed a weak tendency to predict their fathers' answers falsely.)

Item 35: I discuss my dissatisfaction with the school in the presence of my child. (Both sets of parents typically answered "sometimes" to this item, but children tended to predict that their parents would answer "seldom." Though mothers and fathers tended to answer the item alike, children showed very little tendency to predict their parents' responses.)

Item 36: I share family problems with my child. (All groups typically answered this item "sometimes." Though only mother-all children pairs were associated at a criterion level, all pairs of groups were associated weakly except fathers and daughters.)

Item 39: I am tolerant of loud volume levels on radio, TV, and record player. ("Sometimes" was the typical answer for every group. Only mothers and fathers agreed at the criterion level on the item. Sons tended moderately to predict their fathers' answers falsely.)

Item 40: I object when the telephone line is tied up for long periods of time. (Every group tended to answer alike: "sometimes." Mothers and fathers agreed and both sexes of children tended to predict their mothers' responses. Practically no tendency was observed for either sons or daughters to predict their fathers' responses. Control of the family phone may be the province of mother rather than father in the Felton families but data are inadequate to support such a conclusion.)

Item 41: I give directions and assignments in a matter-of-fact voice to my child. (Except for sons who typically predicted that their fathers would answer "often" to this question, every other group tended to answer "sometimes." No pair of groups agreed on this item. Daughters' answers revealed a negative association at criterion levels with their fathers' answers.)

Summary

In addition to providing a stimulus to excellent discussions at parent-teacher meetings at Felton Laboratory School, this report has shown clear cases of congruence between the perception of parenting behavior as formed by parents and their children, clear cases of disagreement and very many cases of unpredictability. Moreover, the report has served as an example of the present researchers' suggestions for practical use of the CPPC. The next logical step after the measurements and associations are examined is to investigate the malleability of these perceptions, to determine if greater congruence follows systematic training or discussion among family members. Finally, research needs to be undertaken to determine the effects on a students' adjustment and school achievement of his or her congruence with parental perceptions of parenting behavior.

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CHECKLIST FOR PARENTS OF PREADOLESCENT CHILDREN

Parent's Name ______________________ **Child's Name** ______________________

Check appropriate box:
☐ MOTHER ☐ FATHER
☐ GUARDIAN

Check appropriate box:
☐ BOY ☐ GIRL

Directions: **Read the questions below and mark the column that best describes your parenting behavior. Read the example below before beginning to respond.**

Example: *My child eats breakfast.*

Often	Sometimes	Seldom

If your child usually or always eats breakfast, you should place a check mark in the column headed "Often." If your child rarely or never eats breakfast, mark the column headed "Seldom." If the answers seem too extreme, mark the column headed "Sometimes."

Often	Sometimes	Seldom	
			1. I consider my child's opinion before making a family decision.
			2. I discuss stories from my childhood with my child.
			3. I touch or hug my child or show other signs of physical affection.
			4. I encourage my child to discover and appreciate the family's historical roots.
			5. I engage in frank discussions of sexual issues with my child.
			6. I provide several choices rather than decide an issue for my child.
			7. I discuss with my child the changes occurring in his/her body.
			8. I buy cooperative games and cards to have around the house.
			9. I seek my child's suggestions on family decisions.
			10. I am reluctant to give my child compliments.
			11. I allow my child to cook and serve some meals.
			12. I encourage my child to participate in individual and group sports.
			13. I insist that my child eat fruits and vegetables.
			14. I use physical punishment to shape my child's behavior.
			15. I feel betrayed when my child keeps secrets from me.
			16. I guide my child away from tasks that are too difficult.
			17. I become critical when my child laughs, giggles, or talks incessantly with a friend.

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Often	Sometimes	Seldom	
			18. I pursue independent activities other than work away from the family.
			19. I remain calm when my child loses his/her temper.
			20. I criticize my child's excessive concern with his/her physical appearance.
			21. I am critical of my child's behavior.
			22. I understand why it is necessary for my child to buy shirts, jeans, blouses, etc. like his/her friends even though other brands are cheaper.
			23. My child's restlessness disturbs me.
			24. I discourage my child from inviting friends to the house.
			25. I permit the telephone to be used for socializing.
			26. I require my child to go on a family outing even though he/she prefers to stay at home.
			27. I control the manner in which my child spends money.
			28. I accept the fact that my child is now more awkward than before preadolescence.
			29. I allow my child's participation in unsupervised activities.
			30. I encourage my child to visit a number of work places to become acquainted with various occupations.
			31. I discourage my child from seeking work such as babysitting, cutting grass, or raking a yard.
			32. I accept the idealistic expectations my child holds for me and try to live up to them as much as possible.
			33. I talk to my child about sex and the responsibility associated with it.
			34. I recognize special days in the life of my child.
			35. I discuss my dissatisfactions with the school in the presence of my child.
			36. I share family problems with my child.
			37. I consider my child's idea to be as good as mine.
			38. I read newspapers, magazines, and books in the presence of my child.
			39. I am tolerant of loud volume levels on radio, TV, and record player.
			40. I object when the telephone line is tied up for long periods of time.
			41. I give directions and assignments in a matter-of-fact voice to my child.

STUDENT RESPONSES TO A LANGUAGE ARTS TEST OF COGNITIVE FUNCTIONING

Edward N. Brazee
University of Northern Colorado
Greeley, Colorado

The age span from 11-14 is crucial in the cognitive development of the pre and early adolescent. During this time, the youngster moves from concrete thinking through transitional thinking to formal level thinking. At the same time, the pre and early adolescent begins to study a variety of disciplines in depth. Where elementary school curricula requires students to sample from a wide array of activities and ideas, the middle and secondary curricula requires students to think in depth in many different disciplines: language arts, science, math, social studies, home economics, industrial arts, foreign languages, etc.

In much of the work done thus far on levels of cognitive functioning (Epstein, 1978; Sund, 1976; Strahan, 1980) an unstated assumption is that formal thinkers are formal thinkers in any situation. A formal task in one discipline, i.e., science is the same as a formal task in another discipline, i.e., language arts. This assumption has been furthered by such paper and pencil measures of cognitive functioning as the Concrete-Operational Reasoning Test developed by Ankney and Joyce (1974) and the Logical Reasoning Test developed by Burney (1974). Both measures yield one estimate of cognitive level, ostensibly applicable to all disciplines. Lawson and Blake (1976) have said that such measures are accurate measures of cognitive level for other disciplines beyond science. These tests however, are heavily math and science oriented and virtually ignore the processes and products of language arts. These measures of cognitive functioning do not consider the thinking which students use in language arts, nor do they account for interest and motivation which stimulate students to begin and end a task.

The work of Epstein and Toepfer (1978) has demonstrated the need for further investigation in the development of middle school students' thought processes. Of critical importance is the development of measures of cognitive functioning which give accurate and useful information to the classroom teacher as well as the researcher. In addition to the Ankney/Joyce and Burney paper and pencil measures, Sund (1976) developed interview tasks for estimating cognitive functioning. Although such measures provide a product, an estimate of the cognitive functioning of students, they do not consider the process of student thinking (Strahan, 1980). Furthermore, these measures are limited because they depend, at least in part, on students' knowledge, interest and familiarity with science and math concepts. Other researchers, like Arlin (1975), are beginning to develop measures of cognitive functioning which are more content specific and which describe the process of students' thinking in a given discipline.

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Statement of the Problem

The purpose of this study was to investigate a Language Arts Test of Cognitive Functioning (LATCF) to determine if such a measure could give specific information about the thinking required for language arts tasks. To achieve this purpose, the following questions were posed:

1. Did student responses to the LATCF give the researcher enough information to estimate cognitive level in language arts?
2. Was the information gained about students' thinking in language arts more or less helpful in identifying kinds of thinking needed for language arts tasks as compared to the Burney test?
3. What kinds of language arts thinking were identified by the LATCF? Were the six Shayer categories adequate for describing language arts thinking?

Population and Sample Group

The population for this study consisted of all forty-eight seventh graders at the University of Northern Colorado Laboratory School in Greeley, Colorado. All forty-eight students were given the Logical Reasoning Test developed by Burney (1974). According to their cognitive level ratings from the Burney, the students were classified as concrete, transitional or formal thinkers. Four students were randomly chosen from each cognitive level category to take the LATCF.

Research Design and Procedures

The analysis of the LATCF is only one part of a two year investigation in Language Arts and Cognitive Development.

In March, 1981, the forty-eight seventh graders at the University of Northern Colorado Laboratory School were given the Burney Logical Reasoning Test. Twelve students, four from each cognitive level (concrete, transitional, formal) were randomly selected as the subjects for the LATCF. Each student met with the researcher (author) for one session of approximately thirty minutes during July, 1981. During each session the researcher administered the LATCF and acted as facilitator for the discussion, giving directions and encouraging students to talk about each anecdote and possible solutions. All anecdotes were read to the student by the researcher while the student followed along on his own copy. The researcher used several prepared questions, but also probed and asked students to expand, clarify and explain answers given.

Instruments

The Language Arts Test of Cognitive Functioning (LATCF) was developed by the author in 1980-81 for this study. It consists of six anecdotes or tasks which the student must solve/complete. The anecdotes are built on the six functions of:

1. interest and investigation style
2. reasons for events

Further analysis of the data was done to determine the nature of responses to the language arts tasks, i.e., were the Shayer's six functions, the major descriptive characteristics of children's thinking in language arts?

A second set of data will be collected during the 1981-82 school year from all seventh graders comparing the LATCF and the Burney test; statistical analyses of correlations of these tests will be done at that time.

This study presents the findings from the analysis of the problem solving abilities of twelve students using a language arts measure of cognitive functioning.

Findings

Students' responses to the six anecdotes on the LATCF demonstrated the variability of cognitive functioning by seventh graders in language arts. Using Michael Shayer's scale for rating the level of cognitive functioning, eight of the twelve students tested using the LATCF had an identical rating with the Burney. Of the four concrete thinkers according to the Burney, all were rated as concrete on the LATCF; similarly, of the four transitional thinkers according to the Burney, three were rated as transitional on the LATCF, and; of the four formal thinkers according to the Burney, only one was rated as formal on the LATCF.

Table I
Rating Of Cognitive Functioning
(Product Results Of The Burney and LATCF)

Student	Sex	Burney Rating	LATCF Rating
1	F	Concrete	Concrete
2	F	Concrete	Concrete
3	M	Concrete	Concrete
4	M	Concrete	Concrete
5	F	Transitional	Transitional
6	F	Transitional	Concrete
7	M	Transitional	Transitional
8	M	Transitional	Transitional
9	F	Formal	Formal
10	F	Formal	Transitional
11	M	Formal	Transitional
12	M	Formal	Transitional

The purpose of this study was not to do a statistical analysis of the correlation between the Burney and the LATCF. However, the results of the LATCF may not measure the same abilities. Because it is so heavily math and science laden, the Burney may not be a fair predictor of cognitive functioning in language arts. According to the results in this study, the Burney overpredicted the level of cognitive functioning at the formal level. Of more importance, was the ability to determine the nature of cognitive functioning through the anecdotes on the LATCF. The remainder of this discussion is organized under the three questions posed at the beginning of the study.

3. relationships
4. use of a model as a theory
5. type of categorization
6. depth of interpretation (of descriptive passages)

These six functions are from Michael Shayer's How Difficult Is It: A Method of Assessing the Cognitive Demands Made by Science Curricula (1980). Shayer's three taxonomies are written at three degrees of science specificity. Taxonomy I, however, which was used as the basis for the LATCF describes psychological characteristics of children's thinking at each of five stages, from preoperational to late formal operational, and is applicable to other disciplines as well.

The six functions of Taxonomy I as defined by Shayer are different aspects of the development of the child's interaction with the world. Using Shayer's model, which describes the thinking of students from preoperational to late formal operational, the researcher wrote six language arts specific anecdotes, one for each of Shayer's general functions. The anecdotes require students to perform a variety of problem solving activities. Anecdote #1, for example, is a mystery which students attempt to solve. Because Shayer's first function is interest and investigation style, the actual solution of the mystery is of less concern than the manner in which each student attempts to solve the mystery.

Anecdote #2 is a situation which forces students to consider reasons for events. A twelve year old boy wishes to go to a rock concert and his parents are concerned. They express several concerns which the students then need to critique and/or add to.

Anecdote #3 is a list of events which students must put in order and explain why. Further questioning requires students to consider relationships within the ideas given.

In anecdote #4, students are given three open-ended situations involving actions of characters. After learning about the basic situation, the students must complete, react to and explain what action the characters would take. Furthermore, students are asked questions which try to elicit any similarities in actions among the characters to see if they can formulate and use a model as a theory.

Anecdote #5 is about two middle school students with many similarities and differences which students are asked to categorize.

Finally, anecdote #6 requires students to interpret a situation by explaining what should be done when a young girl is faced with a moral dilemma.

A copy of the LATCF is included in Appendix A.

Analysis Techniques

During July 1981, the researcher analyzed the audio-tapes, categorizing responses according to Shayer's criteria for each cognitive level by function. A profile for each student was completed and students were rated as showing evidence of concrete, transitional or formal level thinking. Comparisons were then made between the Burney scores and the LATCF scores.

1. Did student responses to the LATCF give the researcher enough information to estimate cognitive level in language arts?

Using Shayer's six functions with criteria for each level of cognitive functioning, it was relatively easy to rate students' responses to each anecdote. The response to each anecdote gave specific information about that student's ability to perform particular types of thinking in language arts. The six functions of

1. interest and investigation style
2. reasons for events
3. relationships
4. use of a model as a theory
5. type of categorization
6. depth of interpretation (of descriptive passages)

are essential thinking abilities in language arts. A profile sheet was completed for each of the twelve students, showing the level of cognitive functioning used for each function. Based on the total ratings for all six functions, the researcher rated the student as concrete, transitional or formal.

The responses of all five students rated as concrete on the LATCF were solidly in the concrete range. No student had more than one reponse in the transitional range; two of the three transitional responses to individual anecdotes by concrete thinkers were on function #3 - relationships.

Characteristics of concrete thinkers on the LATCF:

1. The most noticeable characteristic was the lack of a systematic method for dealing with the information given. Students ignored important information and gave weight to unimportant pieces of information. They seemed to lack any "method of attack" for problem solving. For example, on anecdote #1 where students had to decide who burglarized a house, both Woody and Anne moved from suspect to suspect without considering any one suspect fully.

2. A limited number of options were given. Many concrete thinkers were hesitant to "try out" ideas or they did not see the options available. In many answers, very little information was given and these students did not respond well to probing by the researcher. Cheryl often said, "I don't know" to probing questions. In considering alternative ways to order the events in anecdote #3, Eric said emphatically, "No, there are no other options."

3. Concrete responses were often general, non-specific solutions. Lori's answer in anecdote #4 to a woman who has been passed over for a job promotion was, "She should try harder." In anecdote #5, Eric ignored several obvious similarities of two teenagers to note that, "they live quite a ways from each other."

4. Concrete thinkers consistently ignored inferential information. Answers/solutions were usually quite literal and based on only one variable. In anecdote #1, for example, Lori considered only the evidence for the son

of the robbery victim as a suspect and did not use information which implicated two others as suspects. Interestingly enough, comments by concrete thinkers showed that they did not realize they were missing this inferential information.

5. Responses by concrete thinkers based on inferences or assumptions were often incorrect because they were based on incorrect inferences or assumptions. In anecdote #1, Cheryl said "Bob Smith's son wouldn't rob a house the second he ran away." She completely missed the inference that the boy ran away after he robbed the house.

6. Concrete responses were often perfectly logical but they were always tied to the present. These students used only information given in the anecdote and rarely went beyond that to hypothesize or infer.

7. In several instances, concrete thinkers recognized information as important to the solution of the anecdote but did not know what to do with that information. In considering the suspects in anecdote #1, Woody said, "Bob Smith's son did it since he ran away from home the night of the burglary." When asked about another suspect, Woody said, "he could have done it also," but could offer no explanation why.

8. Finally, many of the concrete thinkers related ideas from the anecdotes to their own experiences. However, this often prevented them from considering the ideas presented in the anecdote. Relating personal experiences seemed to be a way for concrete thinkers to have a ready response, yet it served as a distractor from the original task. In reponse to anecdote #2 about the rock concert, Lori said, "I wouldn't go there because there is a lot of violence there," and then could give no other answer.

The profile sheets for the six students rated as transitional on the LATCF were consistently inconsistent. As the name transitional implies, students at this stage are developing higher level thinking skills at tne same time they are refining concrete thinking skills. Where the concrete thinkers' responses were nearly all concrete, the responses from the transtional thinkers were concrete, transitional and formal depending on the particular function.

Characteristics of transitional thinkers on the LATCF:

1. Transitional thinkers were fairly systematic, as opposed to concrete thinkers, in the manner in which they solved problems, even though the solution was strictly a literal one. Jeff considered the three obvious suspects in anecdote #1, "The son is the most obvious person since he disappeared after the burglary. Mr. Long could have his pension saved up or something to buy the car. Joe Gallagher would do something else besides rob the house to get even." In this instance, Jeff has accounted for all three suspects in a systematic manner even though his explanations are still literal.

2. The students appeared to have more confidence in the solutions they proposed than did the concrete thinkers. There seemed to be less discomfort with the entire task and they responded to probing questions by the researcher with additional solutions.

3. Transitional thinkers had sporadic "flashes of insight". Their responses to one anecdote would be very abstract and the next response would be concrete. Heila gave a concrete response to anecdote #5 where she used elementary classification to list similarities of two middle school students, "...both are interested in music, she in the school chorus and he, the violin..." Yet in anecdote #6, Heila gave an extended description of the situation, while making several logical inferences. Transitional thinkers pursued some ideas much more than others.

4. Transitional responses showed more use of inferential thinking than did concrete responses. Transitional thinkers were much less tied to the literal and seemed willing and able to test unstated assumptions. In anecdote #4, David infers a great deal about a man from a short description when David says, "He sounds like a person who would just keep on telling him to go to college but you have to tell him to finish high school first to get most jobs."

5. An "expanded world view",not directly tied to his own personal experiences, was used by transitional thinkers. Concrete thinkers used personal experiences to supplant possible solutions. Transitional thinkers used personal experiences to further support possible solutions.

In anecdote #2, Elizabeth uses her "expanded world view" as she explains reasons for prohibiting a twelve year old to go to a rock concert. " Everybody there is on drugs. My sisters go and they say they pass around pot. The musicians pay off the police or else no one would come to the concerts."

6. Transitional thinkers often recognized the difficulty of answering a complex question. David realized that there are no easy answers when he said, after wrestling with a multi-faceted problem, "I'd probably flip a coin to decide." He was not giving up, nor was he ignoring options as the concrete thinkers did. Rather, he was well aware of several options, but he saw that there was no clear-cut answer. Other transitional thinkers recognized that certain decisions could not be made because of insufficient evidence given. In anecdote #1, Elizabeth's comments illustrate this, "I can't tell yet who did it. There is just scattered information. You need to know more information. This didn't have anything to do with the solution. You need more information before you can solve it."

7. Finally, transitional thinkers showed the beginnings of such higher level processes as: control of two variables, David in anecdote #4, "People work for two reasons: money and satisfaction." He then went on to explain the necessity for each; beginnings of generalizations, David in anecdote #5, "..both want to be in the medical field; and , higher identification, David in anecdote #5, "..she likes team sports and he likes individual sports." These processes were not seen in concrete thinkers.

One student was rated a formal thinker on the LATCF. Her responses illustrated many of the characteristics noted in transitional thinkers, but on a more consistent and sophisticated scale. She applied the higher level problem solving abilities to each function. In addition to the characteristics listed in the transitional area, the characteristics of the formal thinker on the LATCF follow:

1. Student was extremely systematic in completing each anecdote. She was very confident in her answers. She did not skip around from idea to idea. She had a mental plan and followed it through.

2. She used explainer thinking on every anecdote. She made inferences that were logical and followed the information given. On anecdote #1, Jill said, "My first suspicion would be Kevin Long, then probably Bob Smith's oldest son. It seems kind of strange that Kevin Long could have a new car and not work for 1½ years. It seems pretty suspicious that James ran away, but maybe he was murdered or something."

3. The formal thinker hypothesized and tried out a variety of ideas and possible solutions before choosing the most likely one. In anecdote #4, Jill said, "He gets the window washer if there is one. If there isn't, he calls the fire department. Or, get a piece of string with gum on the end, stick it out the window...Go to the window below and reach up somehow. Get a stick and poke at the paper. (PAUSE) I would redo the paper."

As the characteristics for each level indicate, student responses on the LATCF did give enough information to estimate cognitive level in language arts.

2. Was the information gained about students' thinking in language arts more or less helpful in identifying kinds of thinking needed for language arts tasks as compared to the Burney test?

Students' responses from this test gave specific information about the nature of thinking in language arts. Students were asked to complete tasks traditionally done in the language arts classroom: give reasons for events in a story, draw conclusions or make inferences about characters and their motives, compare and contrast situations and form judgments about the actions of characters. The responses from the anecdotes should indicate the cognitive level of students in language arts.

The Burney test, on the other hand, is comprised almost exclusively of math and science tasks and terminology: angles, measures, balance beams, syllogisms, experiments, etc. The only language arts type task is five verbal analogies. Although the Burney rating may be accurate for other disciplines, the rating is only a label which tells very little about the nature of language arts thinking. When students worked through the six anecdotes of the LATCF, their responses show the thinking they used.

3. What kinds of language arts thinking were identified by the LATCF? Were the six Shayer categories adequate for describing language arts thinking?

Shayer's six categories appear to be adequate in describing major areas of thinking in language arts. Finding reasons for events, seeing relationships, using a model as a theory, categorizing and interpreting, as well as interest and investigation style are all important language arts thinking processes according to current curriculum guides, textbooks and language arts teachers. These are representative tasks in most language arts programs where students are expected to read, write, listen and speak in meaningful contexts. Rating students' responses according to the six functions gave an excellent and accurate profile of the thinking abilities of these twelve students in language arts.

Conclusions

The Language Arts Test of Cognitive Functioning (LATCF) is an important beginning in designing content specific measures of cognitive functioning. Although such existing measures as the Joyce-Ankney and Burney pencil and paper tests are certainly helpful in determining a label (i.e., concrete, transitional or formal), they do not give much information about the specific processes students use when they solve different tasks. The six anecdotes, written to test a cross section of language arts thinking, provided students with opportunities to use problem solving abilities in language arts areas rather than in math and science. The Shayer categories were extremely useful in giving criteria to rate students' responses to each anecdote. Although the six Shayer functionswere general, they described major categories of thinking used in language arts.

The "thinking" generated by the anecdotes was sufficient to rate each student, and indeed graphically illustrated the variation in thinking among seventh graders. Because students in middle schools are at such a crucial period of cognitive development, it is essential to have precise measures of cognitive functioning. At no other time in their development will there be such a wide range of cognitive development in a given age group. If teachers are unaware of this range of cognitive functioning in the middle grades, they may continue to provide inappropriate experiences for students.

Language arts, in particular, must be responsive to this range of cognitive abilities. It is obvious from the range of scores of the twelve students in this study, that all students cannot cognitively "handle" the same ideas/concepts equally. Although student interest and motivation are very important in student learning, a given task must match the cognitive level of that student to be successful.

Many teachers believe that students are not interested in learning, when in fact, they cannot process information to complete a task, because the task is too difficult cognitively. If we ask students to write a five paragraph essay, to use a traditional language arts task, the thinking which goes into the organization of the essay, including writing the thesis statement, organization of the main ideas, giving examples, writing an effective introduction and conclusion, is often the problem with many students, not the actual writing itself. The teacher must give very specific directions or a model for writing the five paragraph essay so the organization and structure (the "thinking") is given, then the students can concentrate on "filling in" the ideas.

The characteristics of concrete, transitional and formal thinkers are important because they give patterns of thinking in language arts. An effective teacher can use these characteristics to plan activities which are cognitively appropriate for all students.

Finally, the need for more research on content specific measures is clear. More research is needed to determine the essential thinking processes in each content area. Once those processes are identified, they can be used quite easily to categorize students' thinking. The next step will be to plan activities which provide challenge at the appropriate cognitive level but do not over-challenge to the point of frustration and failure.

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Language Arts Test of Cognitive Functioning (LATCF)

Dr. Edward N. Brazee
University of Northern Colorado
Laboratory School
Greeley, Colorado 80639

Anecdote #1

Detective Cooper is called by an old friend, Bob Smith, to investigate some unusual happenings at Smith's house. Cooper learns the following information: (1) Smith's house, at 130 Dogwood Glen, was broken into on March 18, 1981; (2) $10,000 of silverware and jewelry was stolen. Upon further investigation, Detective Cooper found that: (1) Joe Gallagher, a former employee of Bob Smith, had once threatened to get even with Smith; (2) Bob Smith's neighbor, Kevin Long, has a new $10,000 car, yet he hasn't worked in one and one half years, and; (3) Bob Smith's oldest son, James, 19, ran away from home the night of the burglary. He hasn't been seen since.

Questions:
1. What can you say about this situation? What are the facts in the case?
2. Who did it? Explain.
3. What else would you need to know to solve this mystery?

Anecdote #2

Tom, 12 years old, wants desperately to go to a rock concert at Mile High Stadium (Denver, CO) with several of his friends. Tom's mother and father do not want him to go to the concert for several reasons: (1) the concert will last too late into the night; (2) Tom just isn't old enough to attend something like this, and; (3) they know that rock concerts are not always safe places to be.

Questions:
1. Why do you think that Tom's parents don't want him to go to the rock concert? Explain.
2. Are these reasons good reasons? Explain.

Anecdote #3

Place the following events in the correct order by numbering each event in the order you think it occurred.

________ The boy thought about running away from home.

________ The boy is having problems at home and in school.

________ The boy and his parents decide to sit down and talk about their problems.

________ In spite of his good intentions, the boy becomes depressed and runs away again. He does not come back this time.

________ The boy runs away from home; he was caught and brought back.

________ After talking to his parents the boy decides that things aren't as bad as he had thought.

Questions:

1. Explain why each item was placed where it was.
2. What clues dictated this placement?
3. Are there any other ways the story could be organized? Explain.
4. What might the boy's problems be?
5. What options did the boy have at the end of the story? Explain.

Anecdote #4

One of the most important parts of a short story are characters; consider the following characters:

(1) David, 23 years old. A paper containing notes which may give him a job promotion is swept out the window and sticks to the ledge ten feet from the window. Since David's apartment is on the 23rd floor, he thinks carefully, but finally decides to...

(2) Mary, 34 years old. She works for a TV station at the same job she has had for ten years. Mary has taken several courses on her own time and volunteered for many extra projects at work. It is discouraging for her because younger people in her office have been promoted and she hasn't. She decides to...

(3) John, 42 years old. He works in an automobile factory. His son Steve, 15, wants to quit high school and go to work in the factory with his father. His father becomes furious every time quitting school is mentioned. John wants Steve to go to college. He decides to talk to Steve one more time to tell him...

Questions:

1. What will each character do or say? Explain.
2. Are these people in these stories like real people in real life?
3. Why do people work? What do they get out of working?
4. What do these people have in common? Explain.

Anecdote #5

Anne Smith is a seventh grader in a middle school in a small town in Georgia. She is 13 years old and has brown hair and blue eyes. Anne plays on the school volleyball team, is a member of the school chorus and babysits for her neighbors. She loves to ride horseback and has won many ribbons and medals in competition. One day, Anne hopes to be a surgeon.

Fred Gray is a 12 year old sixth grader at a middle school in Chicago, Illinois. He is a good tennis player and swimmer, plays the violin in the school orchestra and works at a day-care center after school to make spending money. In his spare time, Fred makes movies and helps around the house. One day Fred hopes to be a veterinarian.

Questions:

1. What similarities and differences do you notice between Fred and Anne? Explain.

Anecdote #6

During a routine check of the school after a middle school dance, Julie, one of the student council memebers finds that a door to the middle school office has been pried open. The entire office is a shambles and ink has been poured on all the files. Julie remembers seeing an eighth grader near the door earlier in the evening when she needed more refreshments from the office. When Julie questioned the eighth grader, he said that he was getting something from his locker. Julie hadn't thought anything unusual at the time, but now... Worse yet, the eighth grader she saw has been in trouble all year and one more incident will guarantee his expulsion from school. Thinking quickly, Julie...

Questions:

1. What are the facts in this situation? Explain.
2. What should Julie do about this situation? Explain.

DEVELOPING A WORD ANALYSIS SKILL INVENTORY FOR DIAGNOSING AND EVALUATING READING PROBLEMS OF MIDDLE SCHOOL STUDENTS

Michael L. O'Brien
The University of Chicago
Chicago, Illinois

Designing and using tests for the purpose of measuring individual reading problems is a central problem to reading educators. Since the vast majority of tests currently available merely provide normative data, the practitioner is often left with little useful information about the specific problems an individual student has in relation to what is being measured by the test items. The problem is especially great when very specific reading skill abnormalities must be detected.

For these reasons, Faculty and Graduate Students of the Emory University Reading Center have developed an individually administered Inventory of Word Analysis Skill. Several years of item writing and pilot testing procedures were begun with an analysis of the curricula of surrounding school programs in Reading and the subsequent formation of broad behavioral objectives for mastery of word analysis tasks. Two Professors of Reading at Emory, several of their Graduate Students, and fourteen teachers of Reading in the Metropolitan Atlanta area participated in the development of the initial forms of the Emory Word Analysis Skill Inventory (EWASI). Specifically, the EWASI was developed for the purpose of diagnosing individual word analysis skill abnormalities exhibited by the students enrolled in private tutoring in the Emory Reading Center.

Building the EWASI required a formulation of the component processes of word analysis skill. Since it was realized that the Inventory would measure a single trait, namely word analysis skill, the domain of objectives relevant to instructing and measuring word analysis needed to be specified. The content developers of the EWASI delineated thirteen such objectives from the literature (Triggs, 1979; Rosewall & Chall, 1978; Miller, 1974; Potter & Rae, 1973) and constructed at least five items that would measure a range of difficulty associated with each objective (Noll, Scannel & Craig, 1979). These thirteen subscales contained three broad categories- Consonants, Vowels, and Word Structure. Therefore, three "subgroups" were treated as relevant considerations to the development of the EWASI. The ultimate goal, however, was to represent word analysis skill as a single dimension while partitioning out the subscales and subgroups for the purpose of diagnosing specific reading abnormalities.

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SAMPLE

One hundred fifty-six students who were enrolled in the Emory Reading Center during the 1978-1980 school years served as the calibration sample for the EWASI Forms A and B. Approximately 90 percent of these students were of middle- junior high school age (9-15), and about two-thirds of the sample were boys. All of these students were enrolled in the individual tutorial program of the Emory Reading Center because of various reading problems. The students represent a variety of instructional backgrounds, including Public, Private, and Parochial schooling. Approximately 80 percent of the examinees were White, 20 percent were Black. The SES of the sample could best be described as Middle Class.

ANALYSIS PROCEDURES

Because of the need to develop a diagnostic test of word analysis skill, a non-arbitrary hierarchical relationship among items had to be evidenced. Further, because the instrument was to be used across years and at various stages of instruction (i.e. pre v. post) using Parallel Forms, the arrangement of the items with respect to their difficulty must remain constant across these conditions. Further, the position (or difficulty) of the items must be constant for boys v. girls. In addition to demonstrating that the definition of the word analysis skill variable remains invariant across all intended uses of the EWASI, there must be some evidence that the ordering of items reflects an external structure or specification being modeled in some way by the test. The construct hypothesized for the present study was that the difficulty of a given item of word analysis skill will be inversely proportional to the corresponding word frequency probability (SFI) of that word (Carroll, Davies & Richman, 1971). That is, a child should have more trouble reading a word seldom seen in print as opposed to one that is very common.

A pilot study was conducted during the 1978-1979 school year to calibrate experimental EWASI Forms A and B (O'Brien, 1980). These forms contained 78 common linking items and 59 unique items, respectively. The assignment of test form was then randomly selected for each of the 156 students in the calibration sample.

In order to investigate the feasibility of calibrating a hierarchical test for diagnosing word analysis skill problems, the Rasch model for dichotomously scored items was used. This single-parameter latent trait model has demonstrated utility for calibrating useful diagnostic tests, such as the Key Math Inventory. Use of Rasch measurement procedures enables a sample-free estimate of item difficulty in addition to an "analysis of fit" for each item to the total test (Wright, 1968, 1977; Wright & Stone, 1979). In addition, the Rasch procedure enables the practitioner to visually inspect individual item responses for estimating the probability a given response was "expected" to occur. For example, given a child's overall score on the EWASI, a reading tutor is able to examine the individual responses which she would have expected the student to master (see "Application").

Since the motivation of the present study was to investigate the stability of the EWASI forms across the range of purposes for which it was developed, a number of comparisons were necessary. The structure of the word analysis skill variable is defined by the item difficulty calibrations estimated from applying the Rasch model. The structure of the EWASI can therefore be studied by comparing item difficulty estimates for common items administered at different times or with a different sample of children. If the EWASI can be used to measure persons across time and form, the relative ordering of item difficulty estimates must remain invariant. In addition, the items must retain their "fit" to the variable when recalibrated.

Item invariance is investigated by "Quality Control" analyses. Individual common item difficulty estimates are plotted against each other for two administrations (i.e. pre-test v. post-test). The standard error of these estimates determines the amount of sampling variation associated with the difficulty estimates. Once the pairs of item difficulties are plotted and their standard errors are pooled, 95 percent "Quality Control Bands (QCB's)" can be drawn to illustrate the individual items that did not retain invariant positions across some relevant consideration.

Because 95 percent QCB's are used to evaluate item invariance, it is possible that some 5 percent of the items may fall outside these bands and still be invariant. Therefore, an overall result of 95 percent of the items falling within the QCB's is acceptable evidence of the stability of item calibrations. However, even if this overall stability is evidenced, outliers must be evaluated for possible defects, including misfit to a respective analysis. Of primary interest in analyzing invariant items is the repeated incidence of a given item falling outside the QCB's in several analyses. Any item which shifts position in at least two analyses and demonstrates misfit should be removed from the EWASI. Those items retaining invariant positions along the word analysis skill variable defined by the EWASI Forms A and B should be kept and recalibrated with the pooled sample of 156 children who took the test between 1978 and 1980.

FINDINGS AND CONCLUSIONS

Quality Control Analyses

The results of the Quality Control Analyses revealed clear evidence that the hierarchy of word analysis skill items calibrated on the EWASI remained invariant across time, form, instruction, and sex. In each analysis, at least 95 percent of the items retained their position along the hierarchy. The median correlation between the pairs of item difficulty estimates was 0.92. The spread of item difficulties also remained constant, as evidenced by equal variance of calibration in each analysis. Individual items which shifted position were additionally examined for misfit. Three of these items were deleted from final EWASI Forms A and B, leaving 134 items on each form for recalibration. Subsequent results are based on the recalibrated, 134-item EWASI Forms A and B.

Evidence of Reliability

As can be seen from Table 1, the EWASI Forms A and B evidenced high internal consistency reliability. The reliability (Cronbach's alpha) of each form was 0.99, the median subscale reliability was 0.89. Further, the subscales of each parallel form evidenced approximately equal means, standard deviations, and reliability. The parallel form reliability was 0.98; test-retest reliability was 0.91 (investigated with a pilot sample).

Table 1
RAW MEANS, STANDARD DEVIATIONS, AND INTERNAL CONSISTENCY
RELIABILTY (CRONBACH'S ALPHA) OF EWASI FORMS A AND B

		FORM A			FORM B		
SCALE	N ITEMS	$\bar{X}$	S	α	$\bar{X}$	S	α
1	11	9.5	2.5	.87	9.4	2.6	.88
2	12	10.2	2.7	.88	10.2	2.6	.85
3	7	6.0	1.7	.84	6.0	1.6	.78
4	8	6.7	2.0	.85	6.9	1.7	.77
5	14	11.0	4.1	.94	11.2	3.5	.89
CONS	52	43.3	12.2	.97	43.8	11.0	.96
6	11	9.2	2.8	.89	9.0	2.9	.89
7	16	12.3	4.4	.93	12.6	4.1	.91
8	16	10.8	5.2	.94	10.8	4.7	.90
VOWELS	43	32.3	11.5	.97	32.4	10.7	.96
9	4	3.5	1.1	.91	3.6	1.0	.82
10	5	4.1	1.5	.83	3.7	1.6	.77
11	11	7.5	4.0	.94	7.4	3.9	.94
12	12	7.2	4.7	.95	7.2	4.6	.95
13	7	1.7	2.1	.83	2.2	2.5	.90
WRDSTR	39	24.0	12.1	.97	24.0	12.3	.97
TOTAL	134	99.7	34.6	.99	100.3	32.7	.99

Table 2 reports the inter-correlation coefficients between each pair of EWASI scales from Forms A and B, respectively. From Table 2, strong evidence is found to support the intended structure of the EWASI. While subscales tend to correlate highest with other subscales in the same subgroup, the overall subscale correlations *across* subgroups are also highly significant (beyond $p<.001$). Therefore, it is reasonable to treat the EWASI scales as unidimensional while still gaining some additional diagnostic information from cohesive substructures of word analysis skill items.

Table 2
INTER-CORRELATION MATRIX FOR EWASI SCALES, FORMS A AND B
(FORM A UPPER DIAGONAL; FORM B LOWER-- DECIMALS OMITTED)

	SUBSCALE NO.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
SUBSCALE NO. 1	--	90[1]	79	82	86	77	82	69	73	78	81	72	46
2	79	--	76	87	86	79	83	74	77	81	84	78	50
3	76	78	--	75	86	83	83	67	81	79	71	61	41
4	81	80	72	--	82	75	74	66	76	80	75	70	44
5	88	89	78	83	--	87	91	73	85	87	86	77	51
6	87	74	64	84	80	--	85	71	84	88	78	72	46
7	82	83	85	75	91	71	--	78	84	87	89	82	55
8	71	77	73	84	79	81	74	--	61	69	79	76	63
9	83	71	67	81	78	78	69	72	--	89	69	60	43
10	73	75	73	70	82	71	76	72	73	--	80	74	43
11	77	77	81	72	88	74	82	82	70	79	--	93	63
12	62	73	73	66	80	67	74	78	58	73	90	--	68
13	48	55	54	48	60	53	60	63	38	52	72	75	--
CONSONANTS (A)	94	95	88	91	96	87	90	75	85	88	87	78	51
(B)	93	93	86	89	97	85	90	83	83	82	86	77	58
VOWELS (A)	82	85	83	77	89	89	94	93	85	88	89	83	61
(B)	86	86	82	88	91	90	90	94	79	80	87	81	65
WORD STRUC (A)	80	84	72	77	86	81	90	81	73	84	97	96	73
(B)	74	79	79	73	87	75	82	83	70	82	97	96	81
TOTAL FORM (A)	88	91	84	85	94	89	95	86	82	89	94	89	64
(B)	87	89	85	86	95	86	91	90	80	85	94	88	71

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[1] Note: *All* correlation coefficients were different from 0 at $p<.001$.

Evidence of Validity

In addition to being shown as invariant across time, form, instruction, and sex, the difficulties of the EWASI items correlated -0.79 with their word frequency probability. Therefore, the construct hypothesis was supported. Students are more likely to *misread* words which they are *unlikely* to encounter in print. In addition, the EWASI scores correlated 0.91 with the Rosewall-Chall Diagnostic Test of Word Analysis Skills. Students with higher EWASI scores also tended to have more internal locus of control, as measured by the Miller-Avant Locus of Control Scale (r=0.60). It was concluded that the EWASI Forms A and B evidenced a high degree of validity and reliability.

APPLICATION

Although previous sections of this paper report highly positive statistical and psychometric evidence to warrant the use of the EWASI in programs such as that of Emory University Reading Center, demonstrated utility of this test must be established. The following discussion of an actual student in the Emory Reading Center should affirm this need to the practitioner. In addition, the "case study" report should help the reading tutor who will administer the EWASI forms to focus on the basic, non-statistical method of recording and interpreting test results.

On October 20, 1980, JB, a 12-year-old sixth grade male, was enrolled in the Emory Reading Center. On his first visit to the Reading Center, JB was taken by his friendly tutor into a small room and was given EWASI Form A. JB had the list of items in front of him and was asked to read each word in order. Starting with Subscale 1, "Consonant Digraphs," as JB read the list of words, his tutor recorded a correct reading by blackening the box pertaining to that word and left incorrectly read words blank. JB's actual responses to this pre-test are shown in Table 3.

After each subscale was administered, the tutor counted the number of darkened, correct words and wrote the number correct in the box labelled "RAW SCORE" to the far right of the subscale line. When JB finished reading all of the words, the total number of correctly read items was found by adding all of the "RAW SCORE" subscale totals. This "TOTAL RAW SCORE" was then written in the bottom right box on the "RAW SCORE (Total)" line. On his pre-test, JB read 79 of the 134 items correctly.

In order to diagnose JB's specific reading problems, it is necessary to see "where he is" in terms of his relative ability to master the various types of words contained in the subscales. First, the tutor identifies where "79" falls along the bottom line labelled "RAW SCORE (Total)" and places a dot at that score (refer to Table 3). Since life (and hence, a test) is composed of music and noise, the observed test score must be bounded by a degree of uncertainty or "measurement error." The measurement error corresponding to each subscale and total test score is located to the right of the RAW SCORE boxes. For the RAW SCORE (Total), the error is 4.0. This means that, in JB's case, although he read 79 items correctly, the tutor should add and subtract 4 words from his "actual score" to be more realistic about what JB "really knows." Thus, the tutor drew an opened bracket at "75" and a closed bracket at "83" to take this error into account. The statistical interpretation here is that, if JB took EWASI Form A repeatedly without any intervening instruction, he would read between 75 and 83 words correctly 68 percent of the time. The next step taken by the tutor and seen in Table 3 was to draw a Vertical Ability Line down the Form A map crossing through the dot at "79." This line indicates JB's overall mastery of the test items and allows the tutor to begin a diagnosis of his specific strengths and weaknesses.

Since the Rasch model was used to calibrate the EWASI Forms, the interpretation of the vertical line drawn down Form A is that JB's word analysis skill ability corresponds exactly to the items appearing right on that line, such as "cute," "crook," "cog," and "nonsense." These are words which JB is just as likely as not to read correctly. However, words appearing to the left of this line are relatively easy for a person like JB, and the tutor should therefore be surprised if he misses very many of these words. On the other hand, words plotted to the right of the vertical line are relatively hard for people with JB's ability and the tutor is surprised if JB reads many of these words correctly. Of course, the farther away words appear from the line, the greater the surprise if the expected pattern does not occur. Since the Rasch model is probabilistic in nature, it is possible to estimate the "improbability" of a given response to an item. For the EWASI Forms, as shown in Table 3, any unexpected response which is at least 3/4 inches from the Vertical Ability Line has an improbability of 75 percent or more. For example,

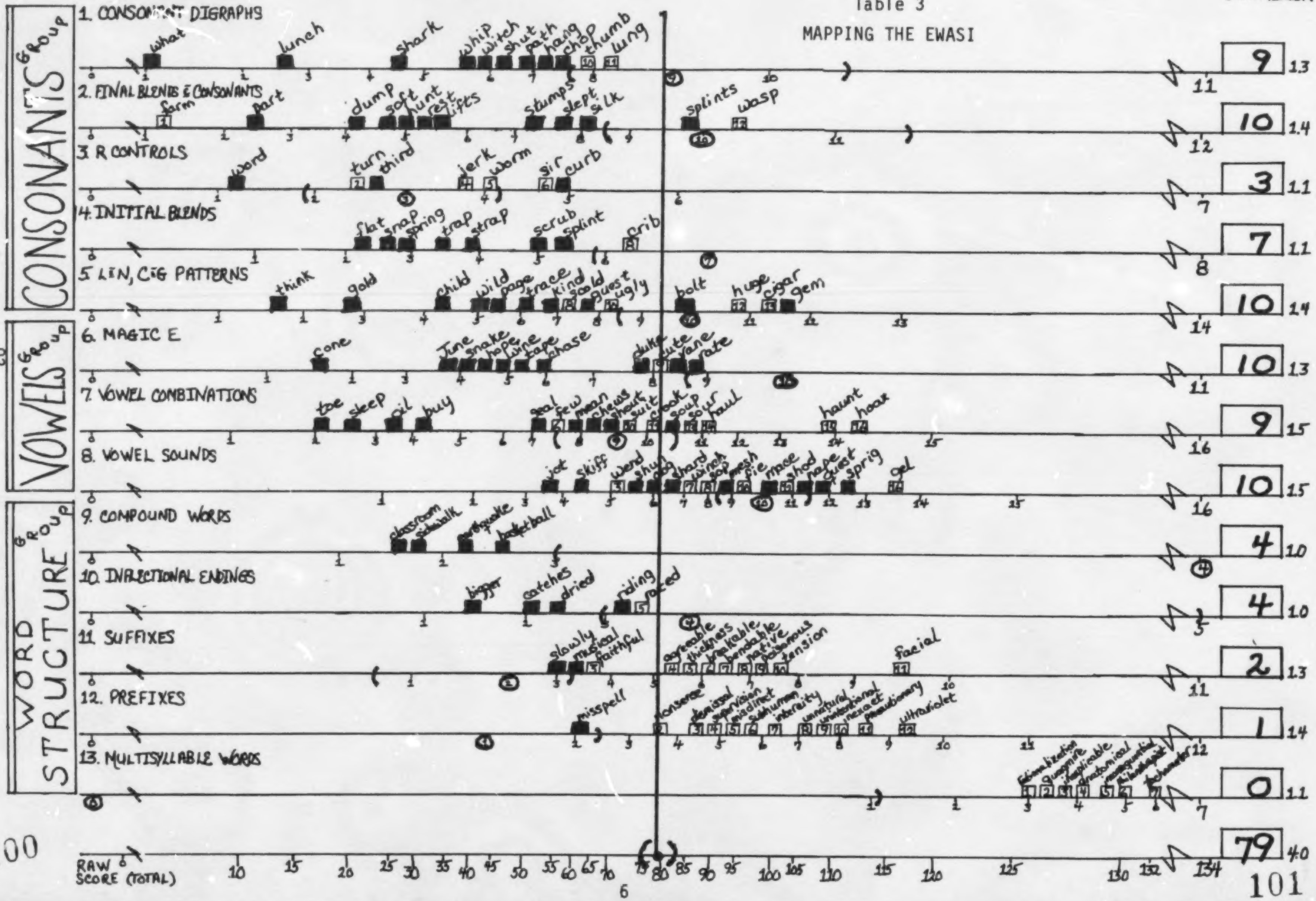
EMORY WORD ANALYSIS SKILL INVENTORY - FORM A

DATE 10/20/80

NAME JB AGE 12 GRADE 6 SEX M

Table 3

MAPPING THE EWASI



	RAW SCORE	SER
1. CONSONANT DIGRAPHS	9	1.3
2. FINAL BLENDS & CONSONANTS	10	1.4
3. R CONTROLS	3	1.1
4. INITIAL BLENDS	7	1.1
5. L,N, C,G PATTERNS	10	1.4
6. MAGIC E	10	1.3
7. VOWEL COMBINATIONS	9	1.5
8. VOWEL SOUNDS	10	1.5
9. COMPOUND WORDS	4	1.0
10. INFLECTIONAL ENDINGS	4	1.0
11. SUFFIXES	2	1.3
12. PREFIXES	1	1.4
13. MULTISYLLABLE WORDS	0	1.1
RAW SCORE (TOTAL)	79	4.0

any item more than 3/4 inches to the left of the Vertical Ability Line that is read incorrectly signals evidence of an abnormality with at least 75 percent confidence.

In order to focus on the problem of diagnosing JB's word analysis skill deficiencies, the tutor follows a similar "error banding" procedure for each of the subscale scores. From Table 3 notice that, underneath each subscale line, small numbers ranging from 0 to the number of items contained on that subscale appear. These numbers correspond to the RAW SCORE JB received on each of these subscales. For each subscale, JB's tutor circled the number corresponding to the Raw Score JB made on that subscale. For example, on Subscale 1 (Table 3), "Consonant Digraphs," the tutor circled "9" underneath the line for that subscale to indicate JB's 'position' or ability on that subscale. Next, the measurement error, or "Standard Error of Response (SE_R)," associated with Subscale 1 was found to the right of the RAW SCORE box-- 1.3. Thus, the Confidence Bands associated with JB's ability on Subscale 1 was found by placing an opened bracket at about "9 - 1.3 = 7.7" to indicate that JB should not be expected to score less than "7.7" on Subscale 1, and a closed bracket was drawn at about "9 + 1.3 = 10.3" to denote JB's highest probable "true score" on Consonant Digraphs is around 10.3. Of course, decimal number right scores have no bearing on the EWASI, but they are useful to understand the theoretical range that the tutor will use to make practical decisions.

Once the tutor circled and bracketed all of the subscale scores, the diagnosis begins. It should be noted here that, while at first the recording and mapping seems like a tedious process, it takes less than five minutes once the tutor becomes accustomed to it through practice. A completed EWASI Form map, such as JB's Form A in Table 3, is worth at least 1000 words of "hit and run" diagnosis.

In order to make the process of interpreting JB's pre-test more explicit, Table 4 provides a summary of comments derived from simply looking at the properly completed test forms. The terms and decision rules underlying the summary in Table 4 will be clarified below.

The first task of planning an appropriate instructional plan for JB is to identify his strengths and weaknesses, given his overall reading problem. It is, after all, impossible and useless to attempt to categorize JB's "overall word analysis skill" unless the decision "for what?" is given. The Reading Center is, therefore, better serving JB by concentrating on specific word analysis skill problems that are identifiable by analyzing the objective-referenced subscales of the EWASI. From Table 4, it is seen that three categories were used to describe JB's performance on each subscale. These categories are used in order to relate JB's ability on each subscale to his overall ability, as denoted by the Vertical Ability Line drawn down the test form in Table 3.

JB's tutor considered his ability on a given subscale to be "Average" if the Vertical Ability Line indicating JB's overall word analysis skill fell somewhere between the Confidence Bands marking his ability on that subscale. Thus, for Subscale 1, Consonant Digraphs (See Table 3), since the vertical line falls between the bracketed region (Confidence Bands), JB should be viewed as about equally proficient at reading Consonant Digraph items as he is reading any given word analysis skill item in general. If, however, the closed bracket (Upper Limit) of the Confidence Band for JB's ability on a subscale falls to the left of the vertical line, he is considered to be especially "Deficient" with respect to these types of items. An example of this result can be seen on Subscale 3, R-Controls, of JB's pre-test (See Table 3). Finally, if the opened bracket (Lower Limit) of the Confidence Band for JB's ability on a subscale falls to the right of the vertical line, he is considered to be especially "Strong" with respect to these types of items. For example, JB was "Strong" on Subscale 6, Magic E (See Table 3).

Table 4
INTERPRETING THE EWASI

STUDENT: "JB" AGE 12 GRADE 6 SEX M
PRE-TEST: Form A DATE: 10/20/80 SCORE: 79

PRE-TEST DIAGNOSIS

SCALE/SUBGROUP	OVERALL STATUS	SURPRISES
1 (Consonants) Consonant Digraphs	AVERAGE "9"	-----
2 (Consonants) Final Blends & Consonants	AVERAGE "10"	farm (0)[2]
3 (Consonants) R-Controls	DEFICIENT "3"	turn (0), jerk (0) worm (0), sir (0)
4 (Consonants) Initial Blends	AVERAGE "7"	-----
5 (Consonants) L&N, C&G Patterns	AVERAGE "10"	gem (1)
6 (Vowels) Magic E	STRONG "10"	-----
7 (Vowels) Vowel Combinations	AVERAGE "9"	few (0)
8 (Vowels) Vowel Sounds	STRONG "10"	sprig (1), quest (1) nape (1), mace (1)
9 (Word Structure) Compound Words	AT LEAST AVERAGE "4"	-----
10 (Word Structure) Inflectional Endings	AVERAGE "4"	-----
11 (Word Structure) Suffixes	DEFICIENT "2"	faithful (0)
12 (Word Structure) Prefixes	DEFICIENT "1"	nonsense (0)
13 (Word Structure) Multisyllable Words	NO INFORMATION "0"	-----
TOTAL	RELATIVELY WEAK "79"	-----

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[2] "(0)" Denotes Incorrect Response
"(1)" Denotes Correct Response

Classifying results by the method being described and as illustrated in Tables 3 and 4 is a good practice for the tutor to adopt. In the long run, it saves time and confusion by providing an easily seen, objective basis to diagnose problems and to evaluate their remediation. Now that the mapping procedures and decision rules for identifying strengths and weaknesses are clear, the analysis of JB's test form is remarkably easy.

On the summary sheet shown in Table 4, JB's tutor records his name, grade, sex, and pre-test score. Given the completed pre-test map shown in Table 3 and summarized in Table 4 "PRE-TEST DIAGNOSIS," JB's tutor visually inspects the results of each subscale to determine his strengths and weaknesses as well as those individual item responses that were especially "unexpected" or surprising. Nothing very interesting is evident from JB's performance on Subscale 1, Consonant Digraphs. Similarly, JB s responses to Subscale 2, Final Blends and Consonants, fell within his "Average" word analysis skill ability, as indicated by the vertical line crossing through the Confidence Bands in which JB can be expected to perform on this subscale. However, it is striking that JB misread "farm," which is an extremely easy item relative to his ability. JB's tutor should give him another chance to read this item before concluding that, for some reason, JB cannot read "farm."

On Subscale 3, R-Controls, JB appears to be "Deficient," since his expected level of ability as shown by the Vertical Ability Line drawn in Table 3 is considerably above the Confidence Bands in which JB is capable of performing when reading R-Control type items. In particular, the tutor was surprised that JB missed "turn," jerk," "worm," and "sir."

JB's performance on Subscales 4 and 5, the last two scales of the Consonants Subgroup (items for which the objective being measured addresses consonants), is considered to be "Average." The only surprise from these responses is that JB read "gem" correctly, which is quite difficult relative to his ability. The tutor should ask JB to read "gem" again to verify his unexpected strength on this item. In general, JB's performance on Consonant items is similar to his overall word analysis skill. However, his course of instruction should emphasize mastery of R-Control type items.

Moving down to the Vowels Subgroup (Subscale 6-8, Tables 3 and 4), JB's pre-test responses reveal a somewhat Strong ability for reading Magic E items (Subscale 6) as well as Vowel Sounds items (Subscale 8). He is about average with Vowel Combination type items (Subscale 7). In particular, JB was unexpectedly strong in reading relatively difficult Vowel Sounds items, such as "sprig," "quest," "nape," and "mace." However, on the Vowel Combinations Subscale 7, JB missed "few," which his tutor would have expected JB to master based on his overall word analysis skill. Perhaps these five surprising responses should be verified by another trial. In making sensible diagnosis, it is always prudent to re-examine surprising results, as any reputable Physician would verify. In planning JB's instruction of reading items like those in the Vowels Subgroup, particular focus on Vowel Combinations might be made. In general, however, vowels do not give JB as much trouble as other types of items.

Inspecting the final group of items which measure Word Structure, it is seen that JB suffers from deficiency in reading words containing Prefixes (Subscale 12, Tables 3 and 4) and Suffixes, Subscale 11. He should have been able to read "faithful" correctly on Subscale 11, and mastering "nonsense" on Subscale 12 would have brought his Confidence Bands for ability to read Prefix items to par with his overall word analysis skill. It should be noted, however, that the Suffixes and Prefixes Subscale items in general were relatively hard for a person like JB to master. Therefore, this deficiency may, in part, be viewed as a "floor effect." On the other hand, Compound Words (Subscale 9) and Inflectional Endings (Subscale 10) items were generally easy relative to JB's overall word analysis skill.

While JB read *all* Compound Words items correctly, it is impossible to know *how* well he can read compound words. No information is, therefore, provided about instruction of Compound Words- except that JB is probably "at least average" on these types of items. JB's ability to read words containing Inflectional Endings (Subscale 10), while also by definition "Average," suggests that *some* attention should be paid to more difficult types of words containing inflectional endings (i.e. since he could not read "rated"). Finally, the Multisyllable Words (Subscale 13) items were all extremely hard for a person with JB's word analysis skill. As can be seen by the Upper Limit (closed bracket) of the Confidence Bands, however, JB *may* be expected to read *one* of these items correctly 68 percent of the times he would take this test. Therefore, the tutor cannot conclude that JB is really deficient on Multisyllable Words although no information is given by JB's score of "0" on this subscale. Of course, half of nothing is also nothing, so little is learned here. However, the more practical conclusion to draw from JB's score of "0" on Subscale 13 is that "No Information" has been ellicited about JB's ability to read Multisyllable Words. The instructional diagnosis indicated from analyzing JB's Word Structure item responses is that Prefixes and Suffixes should be stressed, as well as more complex words with inflectional endings.

In terms of JB's *overall* word analysis skill, the tutor might reasonably conclude that he has *alot of* improving to do before being able to read words commonly seen by boys his age. Further, JB's "Relatively Weak" word analysis skill seen from mapping the pre-test signals strengths and weaknesses that would be particularly important in planning his individualized tutoring program. After a period of remediation, the tutor can use the Parallel EWASI Form B to evaluate JB's progress in word analysis skill.[3]

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[3] Copies of the EWASI Forms A and B with directions for administration and scoring can be obtained from the author at: 7 Bernard Drive, Trenton, NJ 08628. Please enclose $1 for each set of administration/scoring directions and 50 cents for each set of EWASI Forms A and B (instruments are copyrighted). In addition, a longer version of the present paper is available from the author for the cost of duplication (approximately $10).

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A STUDY OF THE RELATIONSHIP OF TEACHER JOB SATISFACTION AND THE LEVEL OF IMPLEMENTATION OF RECOMMENDED MIDDLE SCHOOL PRACTICES

M. Ellen Pook
Boulder Valley Schools
Boulder, Colorado

Background and Purpose of the Study:

The junior high school developed in the early 1900's in response to a dissatisfaction with the 8-4 educational organization prevalent at that time. The purpose of the junior high school was to provide an educational program specifically designed for early adolescents. As time passed, however, the junior high school evolved into an educational organization which closely resembled the senior high school in its program and practices.

The middle school emerged in the early 1960's as another attempt to provide the early adolescent with a unique educational program. Practices to enable the middle school to meet the needs of its clientele have been recommended in the literature, but the degree of implementation of these practices varies from middle school to middle school and is dependent upon the support of middle school teachers.

Whereas the junior high school program has been a source of teacher dissatisfaction, advocates of the middle school movement hypothesize that the middle school program offers the opportunity for increased job satisfaction for teachers. This is presumed to be a function of the open environment of the middle school, the curriculum and methods of instruction specifically designed to meet the needs of the early adolescent, and the likelihood of significant interaction among teachers related to team teaching and team planning.

A limited number of studies comparing the job satisfaction of junior high school and middle school teachers have been undertaken with conflicting results. The schools in these studies, however, were chosen on the basis of the name "junior high school" or "middle school" rather than any difference in educational program. The purpose of this research was to compare the job satisfaction of teachers in middle schools which vary in the degree of implementation of middle school practices. Specific hypotheses tested are stated later in the paper.

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Instrumentation

The instruments used in this study to gather data were the Purdue Teacher Opinionaire (PTO) and the Middle School Practices Index (MSPI). The PTO, developed by Bentley and Rempel (1970) to measure teacher job satisfaction, yields a total satisfaction score as well as scores on ten subtests of the instrument. Subtests are: (1) teacher rapport with principal, (2) satisfaction with teaching, (3) rapport among teachers, (4) teacher salary, (5) teacher load, (6) curriculum issues, (7) teacher status,

(8) community support of education, (9) school facilities and services, and (10) community pressures. The reliability of the PTO as utilized in this study was estimated through the use of the SPSS computer program; results are presented in Table 1.

Table 1

Hoyt Estimates of Reliability for the Purdue Teacher Opinionaire Subtests and Total Score Based on School Scores

Test Title	Reliability
Teacher Rapport with Principal	.97
Satisfaction with Teaching	.88
Rapport among Teachers	.92
Teacher Salary	.83
Teacher Load	.86
Curriculum Issues	.86
Teacher Status	.72
Community Support	.84
Community Pressures	.67
School Facilities and Services	.75
Total Score	.96

The Middle School Practices Index (MSPI) was developed for this study to measure the degree of implementation of middle school practices in the middle schools of Colorado. It is a modified version of a survey instrument developed by Riegle (1971). Practices include continuous progress plans, use of multi-media, flexible scheduling, provisions for student physical experiences, intramurals, team teaching, programs for planned gradualism, exploratory-enrichment programs, guidance services, independent study, basic learning skills extension, creative experiences, programs to provide student security, student evaluation practices, student services, community relations, auxiliary staffing, and social experiences.

After an initial modification of the Riegle instrument based on a review of current literature on middle schools, four middle school experts across the country independently validated the revised instrument. Any questions which were suspect by three or more reviewers were modified or eliminated. The MSPI was then given to four middle level teachers to complete as it applied to their schools. Teacher suggestions were incorporated into the final version of the MSPI. A social desirability scale consisting of three questions was embedded into the instrument to determine if answers reflected actual practices rather than socially desirable responses. Since none of the respondents chose the socially desirable answer for two of the three questions and only one respondent out of 240 chose the socially desirable response for the third question, it was concluded that responses to the MSPI reflected actual practices.

Criterion related validity for the MSPI was established as follows: Dr. Myrle Hemenway of the University of Colorado was asked to rate the middle schools in this study on the basis of the degree of implementation of middle school practices. The point biserial correlation coefficient between school scores on the MSPI and expert judgement of the degree of implementation of middle school practices was .70. The Hoyt estimate of reliability for the MSPI, calculated through the use of the SPSS computer program, was .90.

Sampling Technique

The mail survey was the primary method of gathering data. From the Colorado Education Directory, 1979-80, 60 schools with the name "middle school" in the title were identified throughout Colorado. Names of teachers in these schools were obtained either from current school directories or from written requests to principals. Through a random sampling procedure, six teachers from each school were selected to serve as subjects of the study. If a middle school had six teachers or less, all teachers were surveyed. A total of 340 middle school teachers comprised the sample.

Data Gathering

A packet containing a cover letter, the PTO, the MSPI, and a stamped self-addressed envelope was mailed to each teacher in the sample. Anonymity of respondents was insured through the use of a post card mailed separately at the time the subject returned the questionnaires. The post card allowed the researcher to know who had returned the instruments and yet not know which response came from which subject. The post card also gave the respondent an opportunity to request an abstract of the results of the completed study.

For each item on the MSPI, the mean response of the teachers responding from each school was used to indicate the level of implementation of middle school practices at that school. This necessitated the use of a code number at the end of the questionnaire which identified school only. Subjects were assured that the code at the end of the questionnaire could not be used to identify individuals.

The original and one follow-up mailing yielded 252 returns or a 74% return rate of those sampled. Returns from each of the two mailings were analyzed for selection bias through t-tests and the Chi-square test of association. Time of mailing of returns was independent of the total job satisfaction score on the PTO and all the ten subtests except teacher satisfaction with salary. Teachers who were more satisfied with salary returned the questionnaires sooner than those who were less satisfied with salary. Time of mailing of returns was also independent of all teacher and school variables utilized in the study except the level of educational attainment of teachers. Those with master's degrees returned the questionnaires earlier than teachers with bachelor's degrees.

Hypotheses Tested, Data Analysis, and Findings

Hypothesis I: There is no relationship between job satisfaction of middle school teachers and the level of implementation of middle school practices in their schools. To test this hypothesis, mean school scores on the MSPI and the PTO and each of its ten subtests were calculated through the use of the SPSS subprogram AGGREGATE. Utilizing a non-directional hypothesis test with alpha = .05, Pearson correlation coefficients were calculated between the school MSPI scores and the school total and ten subtest scores on the PTO. (See Table 2)

The null hypothesis was rejected as there were significant positive correlations between the independent variable, school score on the MSPI, and the dependent variables of satisfaction with curriculum ($p < .01$) and satisfaction with school facilities ($p < .05$). The higher the degree of implementation of middle school practices, the greater the satisfaction with curriculum and school facilities.

Although not significant at the .05 level, two additional correlations significant at the .055 level deserve comment. A positive correlation was found between school score on the MSPI and satisfaction with community support of education; a negative correlation was found between school score on the MSPI and the satisfaction with teacher load. Thus the higher the degree of implementation of middle school practices, the greater the satisfaction with community support and the less the degree of satisfaction with teacher load.

Table 2

Correlations of PTO Total Score and Subtests with MSPI School Score

Variable	Correlation	Disattenuated Correlation
PTO Total Score	.128	.138
Rapport with Principal	.028	.030
Satisfaction with Teaching	.132	.149
Rapport Among Teachers	.050	.055
Salary	.194	.225
Teacher Load	-.258*	-.275
Curriculum Issues	.366***	.416
Teacher Status	.149	.185
Community Support of Educ.	.258*	.297
School Facilities & Services	.283**	.344
Community Pressures	.114	.147

*p = .055 **$p < .05$ ***$p < .01$

Hypothesis II: There is no difference in job satisfaction of teachers in schools that are low, medium, or high in the level of implementation of middle school practices.

Hypothesis III: There is no difference in job satisfaction among middle school teachers based on their sex, age, number of years of teaching, number of years of teaching at present school, level of educational attainment, desired teaching level, certificate endorsement level, or size of student body and type of community in which the middle school is located.

To investigate Hypotheses II and III, schools were divided into three groups based on school scores on the MSPI: low implementation, medium implementation, and high implementation schools. Seven two-way ANOVAS were calculated using the factors of level of implementation and the demographic variables of sex of teacher, age, years of teaching, years of teaching at present school, level of educational attainment, desired teacning level, and certificate endorsement level. Two-way ANOVAS for size of student body and type of community were calculated using only two levels of implementation of middle school practices (above and below median implementation) because no schools with small student bodies were high implementation schools, no semi-urban schools were low implementation schools, and no urban schools were high implementation schools. The dependent variable, teacher job satisfaction, was based on the total score for each teacher on the PTO. With alpha = .05, no significant difference in job satisfaction of teachers in low, medium, or high implementation schools was found. Thus Hypothesis II was not rejected.

With alpha = .05, Hypothesis III was rejected. Desired teaching level and size of student body were significantly related to teacher job satisfaction. Teachers who preferred teaching at the middle level were more satisfied with their jobs than middle school teachers who preferred teaching at other levels regardless of the degree of implementation of middle school practices. In addition, using the Newman-Keuls multiple comparison technique with alpha = .05, it was determined that teachers in middle size middle schools (315-508 students) were more satisfied than teachers in large middle schools (550-1039) regardless of the level of implementation of middle school practices since no significant interaction was found. (See tables 3 and 4).

Table 3

Analysis of Variance of Desired Teaching Level and Degree of Implementation of Middle School Practices for Teacher Job Satisfaction

Source of Variation	df	Mean Square	F	Signif. of F
Implementation (I)	2	25.50	.018	N.S.
Desired Teaching Level (DTL)	1	11556.25	8.020	$p < .01$
I x DTL	2	3235.62	2.245	N.S.
Error	231	1440.96		

Table 4

Analysis of Variance of Size of Student Body and Degree of Implementation of Middle School Practices for Teacher Job Satisfaction

Source of Variation	df	Mean Square	F	Signif. of F
Implementation (I)	1	5708.71	4.057	$p < .05$
Size of Student Body (S)	2	4155.62	2.953	$p = .05$
I x S	2	263.32	.187	N.S.
Error	242	1407.10		

Hypothesis IV: The nine teacher and school demographic variables in Hypothesis III are not related to the degree of implementation of middle school practices. To test this hypothesis, school means were calculated for the teacher variables based on the responses of the individual teachers from each school. Size of student body and type of community in which the school is located (urban, suburban, semi-urban, rural) were also determined. Pearson correlation coefficients were calculated between school MSPI score and all teacher and school demographic variables except type of community since this represented a nominal scale of measurement.

With alpha = .05, Hypothesis IV was rejected as two correlations were significant: size of student body and level of educational attainment of the faculty. As the size of the student body increased, the degree of implementation increased. In addition, as the mean level of educational attainment of the faculty increased, the degree of implementation of middle school practices increased. This finding must be regarded with caution, however, as a bias existed in the time of return of questionnaires in favor of the more highly educated teachers. (see table 5).

To determine if a relationship existed between the degree of implementation of middle school practices and the type of community in which the middle school was located, a one-way ANOVA was performed with alpha = .05. Significant differences in the level of implementation of middle school practices were detected for schools in different types of communities (see table 6). Using the Newman-Keuls multiple comparison technique with alpha = .05, the level of implementation of middle school practices was determined to be significantly lower in rural than in suburban or semi-urban schools.

Table 5

Correlations of Teacher and School Demographic Variables with MSPI School Score

Variable	Correlation	Disattenuated Correlation
Age of Faculty	-.015	-.016
Years of Teaching Experience	.075	.079
Years of Teaching at Present School	.009	.009
School Size	.533**	.562
Male/Female Faculty Ratio male = 1 female = 2	.068	.072
Desired Teaching Level middle level = 1 other level = 2	-.178	-.188
Level of Educational Attainment bachelor's degree = 1 master's degree = 2	.306*	.322
Certificate Endorsement non-middle level = 1 middle level = 2	.153	.161

*$p < .05$ **$p < .01$

Table 6

Analysis of Variance of Implementation Level by Community Type

Source of Variation	df	Mean Square	F	Signif. of F
Between Groups	3	992.12	10.777	$p < .001$
Within Groups	52	92.06		

Conclusions and Implications

It may be concluded that overall job satisfaction of middle school faculty does not vary significantly in low, medium, or high implementation schools. Job satisfaction is a multi-faceted concept, and the degree of implementation of middle school practices is related to only a portion of that concept.

Teacher satisfaction with the curriculum in middle schools increases as the degree of implementation of middle school practices increases. This suggests that teachers may be more satisfied with the curriculum in high implementation schools because it is specifically designed to meet the needs of the early adolescent.

Teachers in high implementation schools are more satisfied with the community support of education than teachers in low implementation schools. Middle school advocates have stressed the importance of community support for middle school programs. Perhaps the faculty in high implementation schools may have actively sought community support for their endeavors and received it.

Teachers in high implementation middle schools are more satisfied with school facilities than teachers in low implementation schools. Although the implementation of recommended middle school practices does not require elaborate facilities, the presence of adequate facilities might ease the implementation.

Teachers are more dissatisfied with their teaching load in high implementation schools than low implementation schools. The implementation of middle school practices, such as team teaching, continuous progress plans, etc., requires a great deal of time and effort on the part of the teacher. Perhaps teachers are expected to implement middle school practices without additional help from teacher aides, community volunteers, or clerical workers.

Teachers who prefer teaching at the middle level are more satisfied in their work than teachers who prefer teaching at other levels. This finding has implications for the staffing of middle schools. Teachers in middle size middle schools are more satisfied than teachers in large middle schools. In planning middle schools, it is suggested that size of the student body be taken into consideration. If large schools cannot be avoided, perhaps "house plans" or "schools within a school" might prove worthwhile.

The level of implementation of middle school practices is different depending on the type of community in which the middle school is located and the size of the student body. Low implementation schools are generally located in rural areas and have small student bodies. A study of the reasons behind establishment of individual middle schools may furnish information relative to this finding.

There are in Colorado at present approximately 60 middle schools by title. Denver is in a period of transition from junior high schools to middle schools, and other school districts are contemplating such a change. The information obtained from this study should be helpful to those involved in decision making regarding middle school program development, modification, and staffing.

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ATTITUDES OF EARLY ADOLESCENTS TOWARD SCIENCE, WOMEN IN SCIENCE, AND SCIENCE CAREERS*

Thomas Owen Erb
University of Kansas
Lawrence, Kansas

Career education, to be effective, must be aimed at both cognitive and affective outcomes. The question arises as to when is the best time to introduce career education components into the regular school curriculum. The current study is part of a larger project designed to integrate career education into the science curriculum. This project, Career Oriented Modules to Explore Topics in Science (COMETS), provides a model for coordinating language arts and science instruction with the use of role models from scientific and technical fields. The project is aimed at encouraging all students to keep their options open to the possibility of careers in science and technology. It is especially aimed at helping females keep their options open since it is girls who turn off to science somewhere between elementary and high school.

The main problems for this study were to determine the attitudes of male and female students ages 10 to 16 on several relevant dimensions: 1) attitude toward scientists, 2) attitude toward science, 3) attitude toward women in science, 4) attitude toward careers in technical fields, and 5) attitudes toward careers in science.

Literature

Before grades seven and eight boys and girls show no difference in achievement in math (Fox, 1977). The differences which begin to appear around grades eight and nine are more related to differences in enrollment in math and science courses than to differences in ability between the sexes (Fennema, 1977). Fox (1977) has shown that the enrollment of girls in math classes in relationship to that of boys decreases as the courses become more advanced. Even though the numbers of women receiving professional degrees in the sciences has increased in recent years (Brown, 1979), women are under represented in science careers, especially in those career areas where most of the jobs are: engineering, physics, and chemistry (Vetter, 1978).

Borow (1966) has argued that the middle school years are the ones where young people are most likely to acquire the occupational stereotypes of the adult culture. Blos (1972) suggests that "the ego ideal constitutes a prerequisite for the later choice and pursuit of a vocational goal." The middle years appear to be very important ones for the development of attitudes and aspirations related to later career choice. Some have argued that the process begins even earlier and that some effort should be made to integrate career education into the elementary school curriculum (Evans, Hoyt, and Magnum, 1973; Murphy, 1973; Deiulio and Young, 1973). These arguments are bolstered by the work of Schlossberg and Goodman (1972) who have

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detected sex bias in career perceptions of kindergarteners.

In preparing career education interventions aimed at early adolescents, it is important to know the attitudes of this age group toward those careers and the disciplines which underlie them.

Hypotheses

By examining the attitudes of early adolescents aged 10 to 15, the researcher expected to find sex differences between boys and girls on five dimensions related to the pursuit of careers in science and technology. In addition it was expected that we would find differences due to age on these same variables.

The five research hypotheses were these: with respect to attitude toward 1. scientists, 2. science, 3. women in science, 4. careers in technology, and 5. careers in science boys would score significantly higher than girls on each dimension except for number 3 on which girls will score significantly higher than boys. Secondly boys would maintain or increase their positive attitudes toward these dimensions as they advanced in age during early adolescence and that girls would decrease in positiveness on measures of these dimensions.

Procedures

Sample

The sample for this study consisted of 1235 adolescents (ages 10 to 18) located in three different sized midwestern communities: 784 were attending schools in a major metropolitan area (1,000,000+), 258 were attending school in an urban area (50,000+), and 193 were attending school in small towns (10,000) that also drew some students from surrounding rural areas.

These students were contained in classrooms whose teachers volunteered to field test the science modules developed by the COMETS project or who had volunteered to act as a control group for the project. Usable data on 613 males and 611 females were analyzed. By ages the following breakdown occurred: 10, 31; 11, 264; 12, 312; 13, 245; 14, 144; 15, 69; 16-18, 159.

Data Gathering

In February and March 1981 the 1235 subjects were administered the Career Attitude Scale (CAS) developed by the author for the COMETS project. The first two parts were based on the Image of Science and Scientists Scale developed by Krajkovich and Smith (1979). Their instrument is divided into two parts. Part one was originally a 32-item scale measuring attitudes toward scientists. Part two was originally a 16-item instrument measuring attitude toward science. Krajkovich and Smith (1979) developed the instrument using a sample of ninth graders and reported a Cronbach's Alpha estimate of reliability of .87 for the entire 48-item scale.

The instrument was modified in two ways for the current study. First, since we wished to use the instrument with students as young as fifth graders we eliminated two items and reworded others in order to reduce the readability level. Secondly in conducting our own cross-validation to check reliability of the instrument we eliminated six further items which correlated less that r = .16 with the total score based on a sub-sample of 618 subjects. In addition since we were interested in reporting each sub-scale separately we generated Cronbach's Alpha for each sub-set based on the remaining 617 subjects in our sample. We estimated the reliability of the resulting 26-item Image of Scientists Scale to be alpha = .77 and for the 14-item Image of Science Scale to be alpha = .68. The validity of the instrument was established using the known-groups method and correlation with science achievement (Krajkovich and Smith, 1979).

The second instrument we administered to our 1235 subject sample was a 30-item scale developed by the COMETS staff to measure attitude toward women in science. Like the Image of Science and Scientists Scales, the Women in Science Scale was set up in a 6-point Likert format. An item analysis based on the 618 subject sub-sample caused us to eliminate three items leaving only items that correlated $\underline{r}$ = .35 or better with the total score. Cross-validating the scale with an independent second sample of 617 subjects, we found Cronbach's Alpha to equal 0.92.

The validity of this scale is suggested by the results of the known groups technique. Females significantly outscored males on this scale ($\underline{F}$ = 322.25, $\underline{p}$ = .00). On no other scale administered in this study was there such a large $\underline{F}$-ratio resulting from a test of male and female group means.

The final two scales reported here were designed by the COMETS staff to measure preferences for careers in technology and in science. These scales are imbedded in a 49-item instrument based on the classification of occupations developed by Roe (1976). She designated eight job classifications (1. science, 2. business contact, 3. organization, 4. technology, 5. outdoor, 6. science, 7. general culture, and 8. arts and entertainment) of which technology and science are just two. Subjects were asked to indicate which of the 49 occupations listed they would like to try for a day. Responses were marked on a scale of 0 to 4 ranging from "don't know" to "very interested." The 9-item technology careers scale produced an alpha of .73 based on the 1235 subject sample. The science careers scale resulted in an alpha of .76 based on the same sample.

Data Analysis

After the tests for reliability were completed, two-way factorial ANOVA's were performed to test for differences on the five dependent variables due to age and sex (see Table 1). In addition to two levels of sex, age was divided into seven levels ranging from 10 to 16 and above (meaning 16-18). The SPSS ANOVA procedure was used to perform a classic analysis.

Since the ANOVA's resulted in significant differences between boys and girls on each of the independent variables, post hoc Oneway ANOVA's were performed for each sex on each independent variable in order to test for significance in linear, quadradic, or cubic relationships in the data across age groups (see Table 2).

In addition to the tests for significance, the SPSS Crossbreaks program was run in order to be able to visually inspect the various cell means. These results are reported in Table 3. Figures 1 through 5 contain graphic representations of the male and female group means in the 11 to 14 age groups. These means were selected for closer inspection because of their greater interest to middle level educators.

Table 1
ANOVA Results for the Five Scales
in this Study

Attitude Toward Scientists

Sex	F = 3.96	p = .05
Age	F = 4.32	p = .00

Attitude Toward Science

Sex	F = 17.05	p = .00
Age	F = 1.38	ns

Attitude Toward Women in Science

Sex	F = 322.25	p = .00
Age	F = 2.53	p = .02

Preference for Technical Careers

Sex	F = 152.39	p = .00
Age	F = 2.52	p = .02

Preference for Science Careers

Sex	F = 14.21	p = .00
Age	F = 3.46	p = .00

Note: None of the interaction terms were significant.

Results of Analysis/Findings

With regard to the sex variable, three of our hypotheses were confirmed. Boys had significantly more positive attitudes toward science and exhibited a significantly greater interest in technical careers than did girls. Girls demonstrated a significantly more positive attitude toward women in science than did boys. However, contrary to expectations, girls were also found to have significantly more positive attitudes toward scientists and toward careers in science than did boys.

The results related to age are not as clear cut. The hypotheses suggested a linear progression across age groups with boys becoming in-

Table 2
Tests for Trends Across Ages for
Male and Female Early Adolescents
on the Five Dimensions of Interest

	Male		Female	
Attitudes Toward Scientists				
Btw Groups	F = 5.36	p = .00	F = 0.52	ns
Linear	F = 5.62	p = .02	F = 0.00	ns
Quadradic	F = 12.07	p = .00	F = 0.48	ns
Cubic	F = 3.63	ns	F = 1.15	ns
Attitudes Toward Science				
Btw Groups	F = 2.29	p = .04	F = 0.49	ns
Linear	F = 2.14	ns	F = 0.00	ns
Quadradic	F = 8.46	p = .00	F = 0.05	ns
Cubic	F = 0.21	ns	F = 1.22	ns
Attitudes Toward Women in Science				
Btw Groups	F = 2.56	p = .02	F = 1.08	ns
Linear	F = 2.93	ns	F = 0.02	ns
Quadradic	F = 4.59	p = .03	F = 2.73	ns
Cubic	F = 1.20	ns	F = 2.82	ns
Preference for Technological Careers				
Btw Groups	F = 2.10	p = .05	F = 1.72	ns
Linear	F = 2.16	ns	F = 3.01	ns
Quadradic	F = 2.19	ns	F = 5.29	p = .02
Cubic	F = 0.21	ns	F = 0.28	ns
Preference for Science Careers				
Btw Groups	F = 3.42	p = .00	F = 1.26	ns
Linear	F = 6.64	p = .01	F = 6.14	p = .01
Quadradic	F = 4.80	p = .03	F = 0.23	ns
Cubic	F = 0.11	ns	F = 0.02	ns

creasingly more positive toward science and science careers and girls less so. The actual relationships were not always linear as Tables 2 and 3 and Figures 1 through 5 illustrate. The results vary for each sex. Most of the variation due to age appears to come from data on male subjects as there were no significant relationships due to age found for females on the three attitude scales. There was a positive linear relationship found for females on the Science Careers Scale which confirms the hypothesis that girls would show less interest in science careers as they grew older (see Table 3). There was a positive quadradic relationship found for females on the Technology Careers

Table 3
Cell Means for Each Independent
Variable in this Study

	10	11	12	13	14	15	16+
			Attitude Toward Scientists				
Male	125.19	118.21	112.17	114.26	115.46	108.84	115.22
Female	120.50	116.61	115.23	116.91	115.60	117.22	116.30
			Attitude Toward Science				
Male	60.52	59.09	56.10	55.87	56.97	55.06	57.65
Female	51.90	55.31	54.95	55.04	53.82	55.41	55.20
			Attitude Toward Women in Science				
Male	118.43	113.35	109.47	111.28	118.01	108.53	119.29
Female	145.20	136.45	132.86	134.84	134.19	137.35	135.58
			Preference for Technical Careers				
Male	14.95	16.58	15.66	15.17	17.29	15.28	17.47
Female	12.60	12.32	12.03	11.99	11.49	13.22	13.54
			Preference for Science Careers				
Male	18.00	17.02	15.05	14.62	16.01	12.09	15.21
Female	18.00	17.36	17.07	17.34	16.36	15.38	15.64

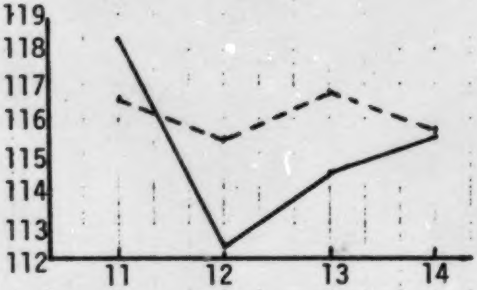
Scale. Girls' preference for technological careers declined during early adolescence but appeared to rebound at age 15 and beyond (Table 3).

The trend data for males is much more complicated. The data for males has revealed significant differences due to age for each scale in this study. With the exception of the Technology Careers Scale positive quadradic relationships were found for males on each scale. On each scale males attitudes and preferences declined during early adolescence, 10 to 13, and rebounded beginning at age 14 (see Table 3). In addition, significant linear relationships were also found for males on the Attitude toward Scientists Scale and the Science Careers Scale. In spite of a late adolescence rebound, there is also a general trend for boys to be less interested in science careers and less positive toward scientists as they progress through adolescence. This finding runs counter to the hypotheses that state boys would become more positive on these scales throughout adolescence.

While there seems to be no steady progression across ages from either 10 to 16 or 11 to 14, careful inspection of the data for 13 year olds and 14 year olds shows a consistant pattern supporting the hypotheses. Without exception, the data shows that 14-year old boys held more positive attitudes on each of the dimensions than did 13-year old boys. Also, without exception 14-year old girls

Figure 1
Attitude Toward Scientists

Raw
Score



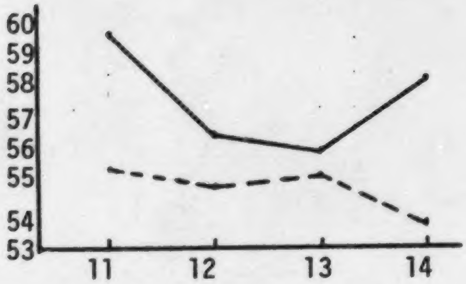
Age

Male = ________

Female = -------

Figure 2
Attitude Toward Science

Raw
Score



Age

Male = ________

Female = --------

Figure 3
Attitude Toward Women in Science

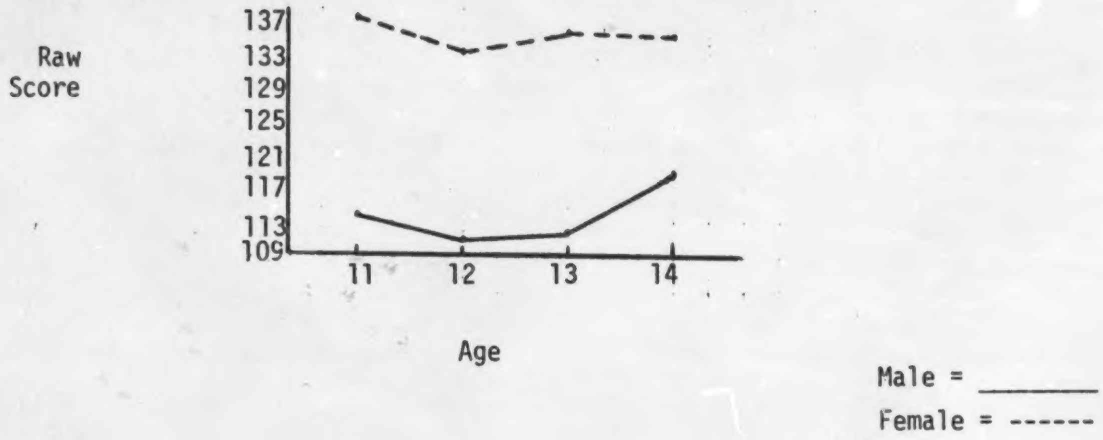


Figure 4
Preference for Technical Careers

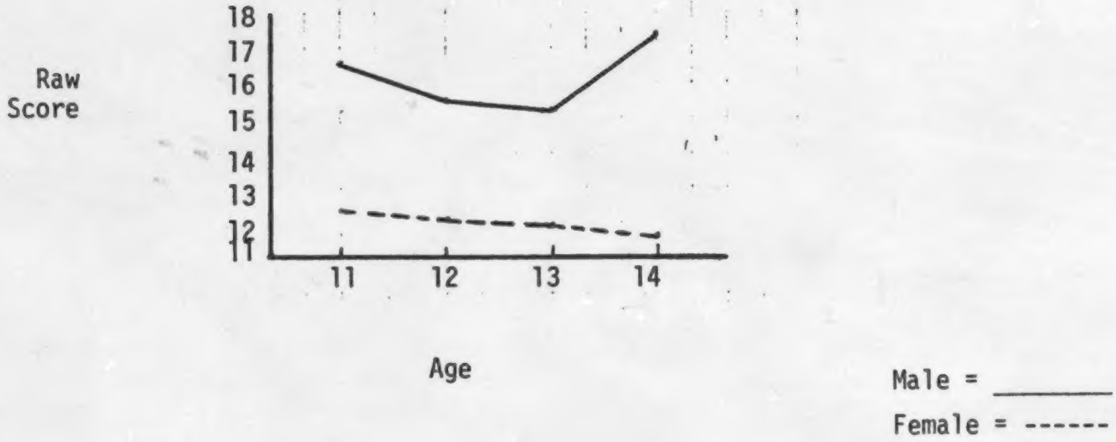
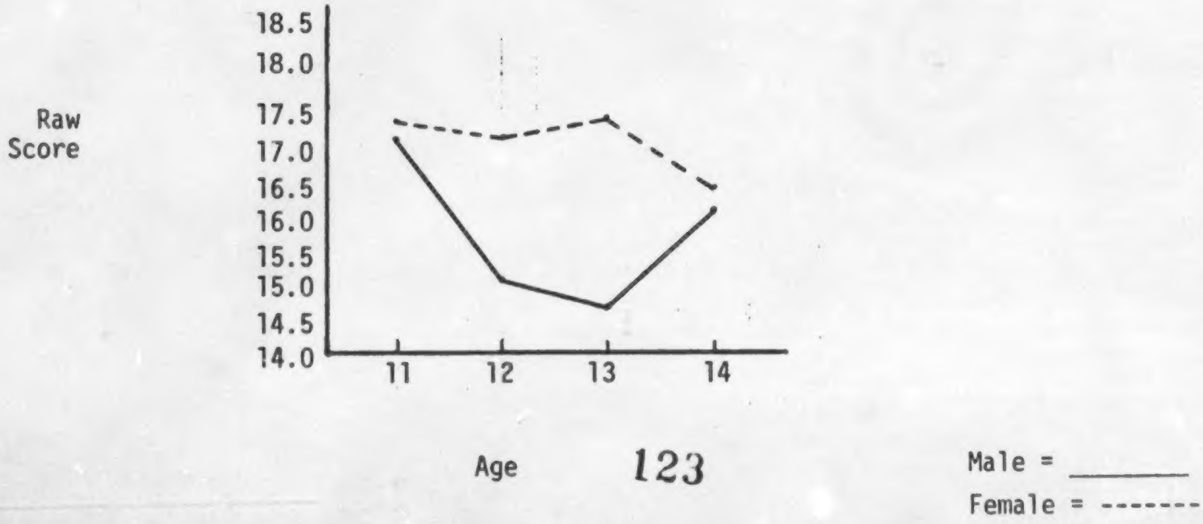


Figure 5
Preference for Science Careers



were shown to hold more negative attitudes than 13-year old girls. For those variables in which 13-year old boys held more positive attitudes than 13-year old girls, the gap widens by age 14. For those variables in which 13-year old girls held more positive attitudes than 13-year old boys, the gap narrowed by age 14. This study also found that for both sexes 12-year olds showed less positive attitudes on all 5 independent variables than did 11-year olds -- for girls this is in line with the hypotheses, for boys this finding is contrary to the expectations suggested in the hypotheses.

Conclusions and Implications

On the sex variable three of our five hypotheses were confirmed. Early adolescent boys are more positively disposed toward science and careers in technological fields than are girls in the same age group. Also girls are more positively disposed toward women in science than are boys. The two sex related hypotheses not confirmed might be explained by different patterns across ages for the two sexes. On these two scales boys show a significant linear decline in scores across age groups. Such a significant linear relationship does not show up on any of the other scales for boys. Girls' scores on the Attitude Toward Scientists Scale remain statistically equal across age groups, so that although they start out with lower scores than boys on this scale their scores show less decline over time than do boys' scores. On the Science Careers Scale girls also show a significant linear decline across ages just as boys do but the decline is steadier and not so steep in the 12 to 13-year old age group. The sex differences favoring females may be an artifact of the results which show female scores to be less volatile across ages than are boys scores. On both scales in which females score higher than boys, the boys' scores also show a significant quadradic relationship indicating a rebound in later adolescence after a decline in early adolescence. Girls scores show no such increase in later adolescence. Girls higher scores overall on these scales may result from higher scores in the early adolescent years. If one begins to examine the scores beginning at age 12 rather than age 10, boys show a more or less steady increase in scores on these scales. Girls do not. So were this study to be redone focusing on slightly older students the results on these scales may be reversed in favor of boys as hypothesized.

On the age variable some complicated relationships have emerged. Generally both sexes decline in scores on the scales in this study during the early years of adolescence (10 to 12). This result should perhaps not be so surprising given the greater demand of physical, social, and emotional concerns during this period. Perhaps measures of attitude toward most academic subject matters would decline during these years. What is noteworthy, though, is that while girls' scores either continue this decline or flatten out, boys' scores rebound in a consistantly significant pattern in the years from 13 to 16 and beyond. Boys in late seventh and early eighth grade show an upswing in interest and attitude.

The thirteenth year appears to be a pivotal one for both sexes. On each scale, without exception, the boys either surge ahead or close the gap on the girls. Boys' scores all increase during this year and girls' scores decrease. This finding would support the arguments for career education interventions during seventh and eighth grades in middle level schools.

In addition to the support for career education to be integrated into the science curriculum in seventh and eighth grades, there is evidence in this study for career education to begin at an earlier age. On each scale there are significant differences in age which begin to exist by at least age 10. Evans, Hoyt, and Magnum (1973) present a three level career education model that would appear to make sense in light of our findings and the writing of other middle level authorities. They suggest that the emphasis in elementary schools should be on awareness of career possibilities. During the middle years they suggest an emphasis in exploration which is consistant with recent writing dealing with the total middle school program (see for example Lounsbury and Vars, 1978; Alexander and George, 1981). They suggest an emphasis on decision making for the high school. The shift in emphasis to exploration for the middle years would also tend to be supported by our findings that both sexes show a decline in attitude toward science and science related careers in early adolescence, probably due to a general decline of interest in academic subjects. Consequently, to be effective the career education component needs to be hands on, concrete and call for active student participation to be effective. There is also an implication here that the teaching of academic subjects, like science, can be made more motivating for early adolescents by consciously relating them to "the real world," in this case things that people in the real world can do with science concepts. Since students are beginning in earnest their quests for self-identity, the opportunity to interact with role models from the real world of science and technology would be highly recommended as part of a careers in science component for early adolescents.

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LOCUS OF CONTROL AND SCHOOL ADJUSTMENT FOLLOWING THE LOSS OF A PARENT[1]

Thomas A. Enos
Hillsborough Public Schools
Belle Mead, NJ 08502

Bruce W. Hartman
Seton Hall University
South Orange, NJ 07079

A growing body of evidence suggests losing a parent, either through divorce or death, is positively correlated with maladjustment (Birtchnell, 1969; Felner, Ginter, Boike, & Cowen, 1981; Felner, Stolberg, & Cowen, 1975; Sandler & Block, 1979). As this maladjustment surfaces in school it becomes a concern for teachers. Felner, et al. (1981) found that the most maladjusted students in primary grades had histories of parental death or divorce. Mundhenk (1980) also found greater incidence of school behavior problems in high school students who experienced a change to a single parent family.

However, individual children may vary markedly in how well they cope with such a crisis even as parental loss. Sandler and Block (1979) have noted that some children within their study did not exhibit the relationship of life stress events with adjustment problems. Felner, et al. (1981) suggest that some children may adapt quite well, and even utilize the crisis as a strengthening experience.

In recognizing the apparent differences among various children in terms of their vulnerability to stress, Skolnick (1979) has suggested a possible determining characteristic arising from within the individual. She cited Seligman's (1972) learned-helplessness theory which states that individuals give up, and thus do not adapt well, in times of stress when they feel they have little or no control over their life events. If this is true, we would expect students experiencing difficulty adapting to parental loss (not adapting to stress) to have an external locus of control (feeling no control over life events). We would also expect this inability to adapt to the stress of parental loss to surface as a school adjustment problem (Felner, et al., 1975; Mundhenk, 1980). In addition, we would anticipate this relationship to be stronger for students losing a parent through death than through divorce due to the greater stress associated with losing a parent through death.

Method

Subjects

Students in this experiment were attending a central New Jersey middle school. The school is located in a suburban community with a wide range of socio-economic levels and cultural backgrounds. Seven schools comprise the school district. There are four elementary schools (grades K-5), one school which houses all sixth grades, the middle school in this study (grades 7-9), and one high school (grades 10-12).

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[1] The authors wish to express their appreciation to Dr. Robert Gulick and his staff for their valuable cooperation and assistance in the collection of the data.

All middle school students attending regular classes on the day of the administration of the questionnaries were sampled (n=840). From within this sample, 18 students with histories of parental death were identified. Three of these students were in the seventh grade, four were in the eighth grade, 11 were in the ninth grade. There were 12 females and six males ranging in age from 12 to 15. Twelve of the students were living with only their mother, two with only their father, and four indicated living with someone other than a parent. Eighteen students having experienced parental separation or divorce and 18 students having experienced no loss (a control group) were selected for how well they matched the students who had experienced death of a parent in grade, sex, and, in the case of the separation/divorce group, with whom they were living.

Instruments

Nowicki-Strickland Locus of Control Scale. The Nowicki-Strickland Scale (Nowicki & Strickland, 1973) is a paper-and-pencil measure consisting of 40 questions that are answered either yes or no by the student placing a mark next to the question. To classify participants as external or internal the total Nowicki-Strickland Scale scores were split approximately at the median. Thus, 26 students were classified as internally controlled and 28 students were classified as externally controlled.

Nowicki and Strickland (1973) investigated the construct validity of the scale by correlating scores with scores on the Intellectual Achievement Responsibility Scale (Crandall, Crandall, & Katkovsky, 1965) in a sample of black third (n=182) and seventh graders, $r = .51$, $p < .01$. The correlation with the Bialer-Cromwell Scale (Bialer, 1961) measuring locus of control was also significant, $r = .41$, $p < .05$, in a sample of white children (n=29) aged 9-11. Nowicki and Strickland concluded these significant correlations suggested support for the construct validation of the Nowicki-Strickland Scale.

Classroom Adjustment Scale (CARS). Student's school adjustment problems were assessed by using the CARS (Lorion, Cowen, & Caldwell, 1975). The CARS has three main sections. Section I consists of 41 behaviorally oriented items describing various school adaptation problems. Section II includes six questions regarding family background problems, and Section III consists of three 7-point scales measuring how well the teacher knew, how much she/he liked, and how serious she/he considered a student's problems to be. Lorion, et al. (1975) found the CARS to have discriminate validity as a sample of students referred for adjustment problems consistently scored significantly more maladjusted on the scale than a control group ($p < .001$).

Although three teachers for each of the 54 students in the study were asked to rate the participating student(s) on the CARS, only one scale was returned for nine students, two were returned for 29 students, and all three were returned for 16 students. While teachers were requested to complete the entire scale, the last item in Section III provided a direct means by which students could be classified regarding school adjustment. This item asked teachers to rate the student on the success of the child's school adjustment.

The interrater reliability of teachers' ratings of students on this last item, using an interclass correlation, was calculated to be $\underline{R} = .39$, with the between-raters variance included as part of the error term to calculate the average reliability of the individual rater. The Lawlis and Lu (1972) measure of interrater agreement was calculated, $X^2(1) = 12.44$. p .01, for the 7 point Likert-type rating scale ranging from (1) school adjustment problem to (7) no school adjustment problem. Agreement on the scale was defined as a discrepancy of 1 point or less because we felt meaningful differences between a rating of, for example, 6 and 7 would be difficult to define. A $\underline{T} = .50$ (Tinsley & Weiss, 1975) was calculated suggesting that the interrater agreement was moderate.

Based on the teachers' ratings on the success of school adjustment, the student was classified as either having a school adjustment problem or not. We judged a rating of 4 or less to be indicative of a school adjustment problem. By this criterion, there were 26 students having school adjustment problems and 28 students not having school adjustment problems.

Procedure

The Nowicki-Strickland Scale and a demographic questionnaire, which included items relevant to the parental situation at home, were administered to students by homeroom teachers. The administration of the questionnaire was accomplished on a single day during the last week of classes in the Spring of 1981. Before the questionnaires were distributed, students were told that their responses would be analyzed as a group with no individual's responses being identified. Standard written instructions were provided with each instrument, and verbal clarification of the instructions was offered by homeroom teachers only on request. Both teachers and students were not told the ultimate purpose of the study.

After the instruments were administered, participants were selected for the two crisis history groups and the no loss control group. Three teachers for each student participating in the study were asked to complete the CARS. The directions on the CARS were self-explanatory and no further rating instructions were given to the teachers. The teachers were asked to return the completed CARS to the principal's office before checking out for the year, allowing them two days to complete the ratings.

Results

A 2 x 2 contingency table for each crisis history group figuratively represented the relationship we hypothesized between school adjustment and locus of control. Whether the student had a school adjustment problem or not was considered the dependent variable in the contingency table. The independent variable was locus of control, either internal or external. We calculated lamda (Mueller, Schuessler, & Costner, 1970), a measure of association, for three such contingency tables representing each crisis history group. The lamdas were .25, .14, and .11 for students experiencing death of a parent, for students experiencing the separation/divorce of their parents, and for the students experiencing no loss, respectively. Although the obtained lamdas were rather small, our hypotheses were supported. That is, knowing a student's locus of control enhanced our ability to classify the student as having a school adjustment problem or not, and our accuracy increased as the stress associated with the loss of a parent increased.

Lamda can be interpreted as the percent of fewer errors made in predicting whether a student is a behavior problem by taking into consideration the student's locus of control. For example, if each student who experiences the death of a parent is considered as having a school adjustment problem, an error in classification would be made in 44% of the cases because eight of the 18 students in this crisis history group are not having school adjustment problems. The error in classification is reduced .25 (or 25%) to 33% misclassifications if we take into consideration the student's locus of control.

Discussion

The results confirmed the relationship between externality and school adjustment problems for each of the three crisis history groups. As hypothesized, the strength of this relationship increased as the level of stress associated with the loss of a parent increased. That is, the relationship between having an external locus of control and also having a school adjustment problem was strongest for the students experiencing the death of a parent and weakest for students experiencing no loss.

Although the results confirmed our hypotheses, the differences between the lamdas were small enough to require caution in interpretation. These slight differences may have resulted from our method for classifying students on the dimensions of locus of control and school adjustment. If the sample size would have allowed, it would have been preferable to select students that deviated ±1 standard deviation from the mean on the Nowicki-Strickland Scale, and to base the determination of school adjustment problems on more than one item on the CARS.

However, attention to the locus of control construct, particularly in children who have undergone a crisis as stressful as the loss of a parent through death, appears warranted for students similar to the ones in the present study. Thus, we suggest that teachers identify and attempt to change a student's locus of control to a more internal orientation when a student with an external locus of control loses a parent through death or separation/divorce.

Administering the Nowicki-Strickland Scale may not be feasible, but it is possible for teachers to identify externally controlled students through expected observable behavioral characteristics. For example, Lefcourt (1976) suggests the individual having external control expectancies, in contrast to internal ones, will be more compliant with the influence of negative outside influences (i.e., certain peer groups), less likely to accept responsibility or the blame for his/her actions, more impulsive and less apt to think through problems or steps in an action, and less persistent in attempts to complete a task.

A teacher who can identify a student who loses a parent as being externally controlled may exert a positive influence by helping to modify the student's orientation in a more internal direction. Nowicki and Barnes (1973) demonstrated that modifying locus of control towards internality resulted in significant improvement in personal adjustment and increases in achievement as well. Teachers can be most helpful by providing the attention and experiences which will increase self-confidence and ultimately allow students to realize that they can exert a significant positive influence over their lives. Students can be taught, or retaught, that what they do can matter in a positive direction. Classroom teachers can accomplish this by rewarding such behaviors as acceptance of responsibility, persistence with a task, and accomplishment of a goal, however small that achievement may be initially. Magnum (1976) has found consistency of discipline to correlate positively with internal locus of control. Such attention should be most helpful with the student experiencing the crisis of losing a parent.

Within the limitations cited, the present study appears to provide support for the value of greater attention to the locus of control construct as it relates to the school adjustment in students experiencing the loss of a parent. Attempts to refine the construct itself may help to clarify the results of this study further. In the interim, we suggest that externally controlled students who suffer parental loss undergo an event which makes them generally different from internally controlled peers experiencing a similar crisis. The externally controlled students consequently mandate increased and differentiated attention.

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